

THE
ARCHITECT
& BUILDING NEWS

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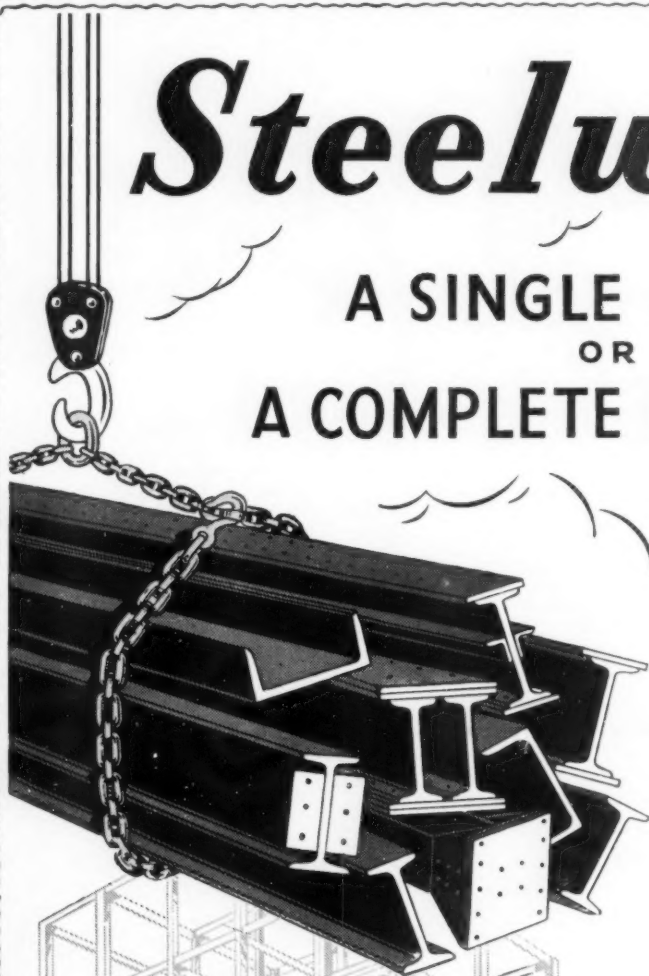
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• INFORMATION DIGEST

PUBLISHED IN LONDON SINCE 1854

Steelwork

A SINGLE JOIST
OR
A COMPLETE BUILDING



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LTD
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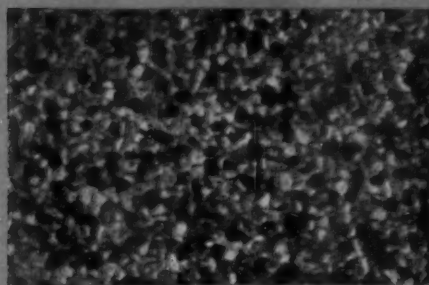


Cheecolite Exposed Aggregate Facing and Cladding Slabs are employed as a complete wall unit for the major part of the new factory for Richard Hudnut Ltd. at Eastleigh, Hants. Architects: Edward D. Mills & Partners. Contractors: Holland & Hannen & Cubitts, Ltd.

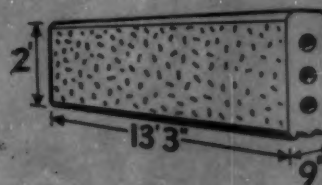
CHEECOLITE Lightweight Exposed Aggregate Facing and Cladding Slabs

For all buildings requiring high quality *natural*, coloured finishes, Cheecolite Lightweight Exposed Aggregate Facing and Cladding slabs offer these unique advantages.

- * Half the weight of dense concrete — therefore easy to handle.
- * Excellent thermal insulation — five times better than normal concrete.
- * A complete wall unit 6" thick with equivalent thermal insulation to an 11" cavity brick wall.
- * Added protection, as Cheecolite aerated concrete is *waterproof*.
- * Obvious savings in costs, site labour and mechanical handling.



Exposed aggregate finish of Cheecolite units used at Messrs. Hudnut's factory, Eastleigh.



Complete wall unit as used on the above factory.

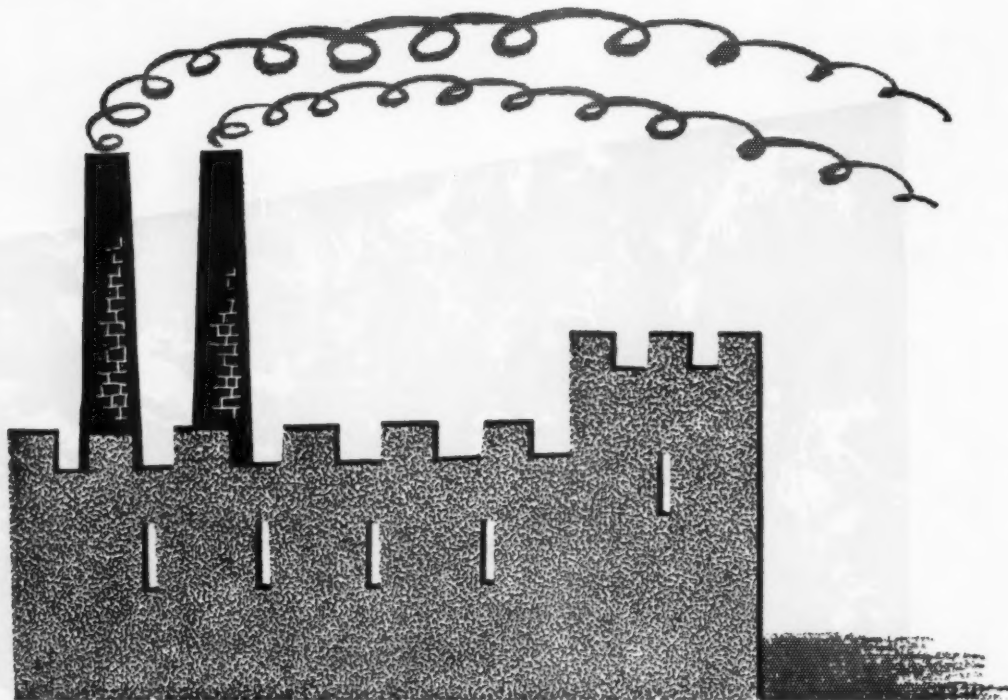
Cheecolite exposed aggregate units are manufactured entirely from Cheecolite aerated concrete. Their uses include (1) as an external skin to a cavity wall construction (2) a complete wall unit which is particularly suitable for schools, factories and similar buildings (3) for giving a new face to old buildings.

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London Office: 40 Broadway,
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Or using **Epikote Resins** for structural protection?

Epikote Resins, made by Shell, are now being used in surface coatings designed to combat corrosion of steel structures under the most arduous conditions. Epikote Resin based coatings are exceptionally resistant to chemical reagents, including solvents. They have proved themselves effective against liquid and atmospheric contamination, even under conditions of high humidity. Wherever Epikote Resins are on guard maintenance costs are cut to a new low level. Your paint supplier will give you further details.



Epikote Resins defy corrosion as never before!

Men with the trade at their

finger tips



advise Architects to specify

PERMANITE
DAMP COURSES

PERMALUME • ASBEX or LEAD ASBEX
Aluminium Lined Asbestos or Asbestos and Lead Base



Manufactured and supplied by

PERMANITE LIMITED 455 OLD FORD ROAD • LONDON • E.3

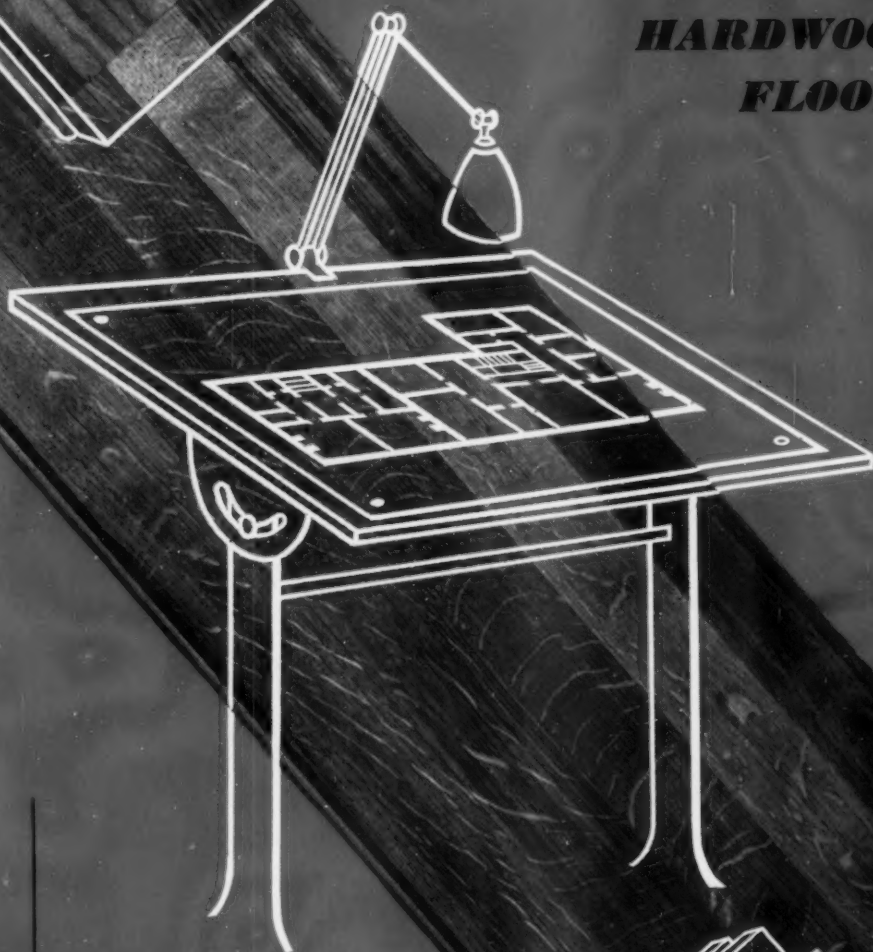
right

from the start...

VIGERS

HARDWOOD

FLOORS



MEMBERS OF

THE HARDWOOD FLOORING MANUFACTURERS' ASSOCIATION

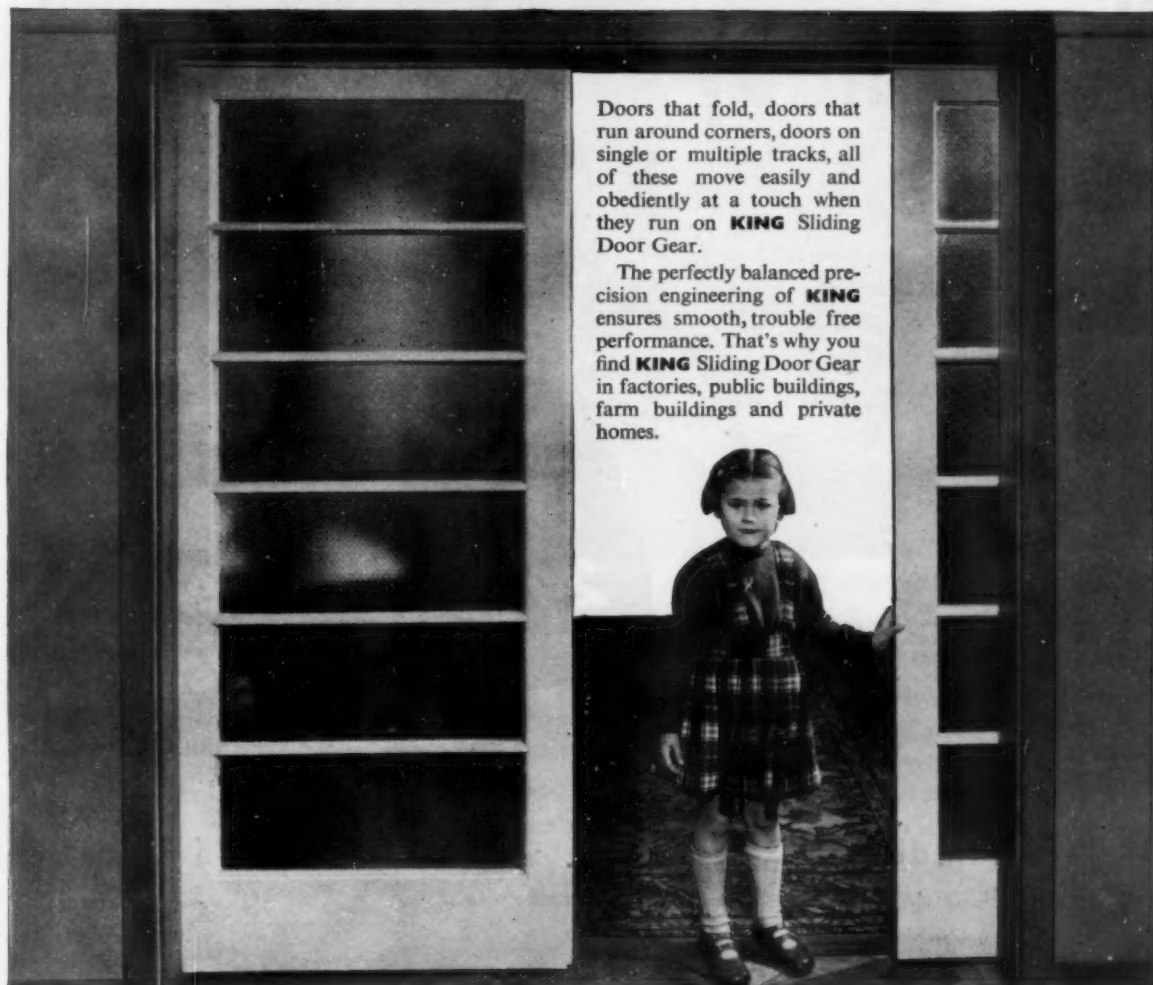
VIGERS BROS. LTD.

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to dizzy heights—**



**When doors slide as easily
as this they are running on
KING SLIDING DOOR GEAR**



Doors that fold, doors that run around corners, doors on single or multiple tracks, all of these move easily and obediently at a touch when they run on **KING** Sliding Door Gear.

The perfectly balanced precision engineering of **KING** ensures smooth, trouble free performance. That's why you find **KING** Sliding Door Gear in factories, public buildings, farm buildings and private homes.

Send for illustrated booklets showing the range and applications of KING Sliding Door Gear. Our experts are glad to advise on special installations.



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Covered by British Patents

WRITE FOR BOOKLET 224, GEO. W. KING LTD., ARGYLE WORKS, STEVENAGE, HERTS. TELEPHONE: STEVENAGE 440

Here's proof of Stelrad Supremacy

The radiator illustrated was installed, with others, in a house in Brentford in 1928. Recently removed during rebuilding operations, a cut-away section revealed the steel to be in perfect condition. Here is proof positive of the long life and good service that can be expected from a Stelrad all-steel radiator. Pressed from the finest quality steel, every Stelrad is welded by a patented process that is exclusive to the Company. A complete range of models is available, and are shown in our catalogue, together with sizes and heat emissions table for easy reference. If you do not have a copy, please let us know.



*Unretouched
picture*

*No trace of
corrosion after
29 years service*

Stelrad Radiators made in STEEL to last a lifetime

**STEEL RADIATORS
LIMITED**

BRIDGE ROAD, SOUTHALL, MIDDLESEX

Telephone: Southall 2603



LONDON TRANSPORT EXECUTIVE CHOOSE CERAMIC TILES

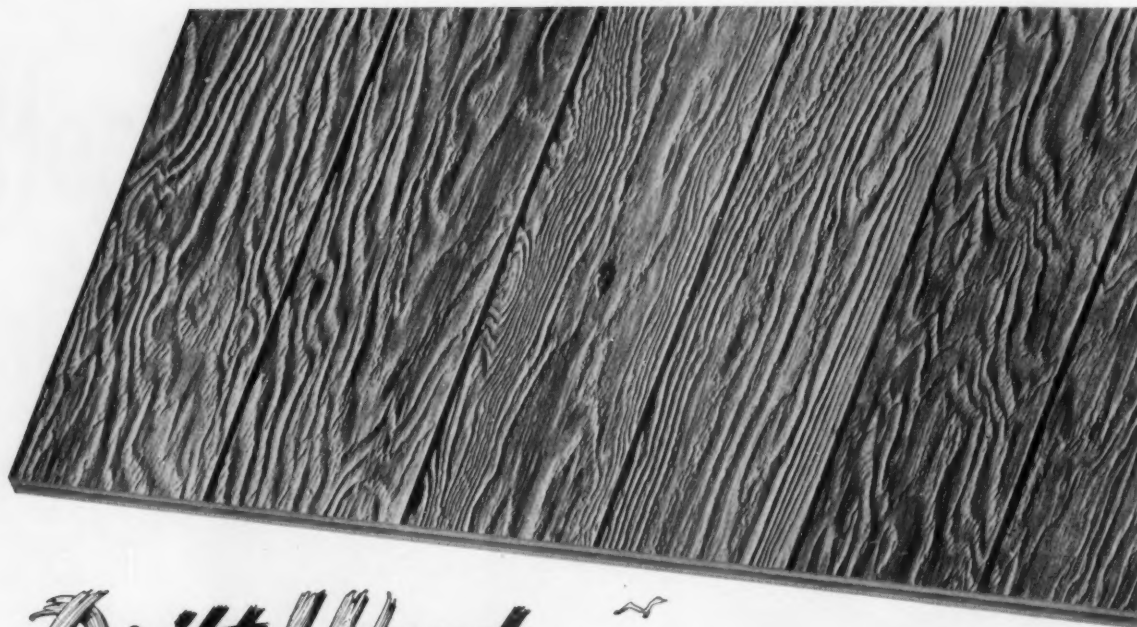
Seven pillars symbolising the wisdom of London's Transport Executive. Years from today their lasting brilliance will stand as proof of an impervious strength. Grime, grubby hands, the brushing shoulders of rush hour crowds, will not alter them . . . think what that means in the £. s. d. of decorating costs. An extensive application of Ceramic Tiles in London's Underground says more than we could hope to write.

Ceramic

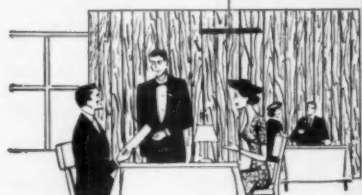
T I L E S

c

Glazed & Floor Tile Manufacturers' Association · Federation House · Stoke-on-Trent



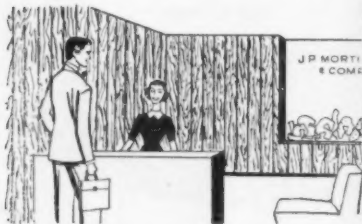
Drift Wood... a beautiful plywood with a deeply-etched surface



In restaurants, Drift Wood reflects light softly.



Drift Wood—a relaxing background for club life.



For office, Drift Wood is dignified, yet restful.

To architects, designers, shopfitters—to all concerned with interior design, we are proud to offer a new decorative plywood, "Drift Wood", so named because its etched surface duplicates all the character of wood aged by long exposure to the sea. Vertically grooved, each panel butts against the next, concealing the joint and producing the effect of deeply etched planking. Pre-stained a lovely Silver Grey, Drift Wood needs no other finish.

For restaurants, clubs, offices and shops, walls of Drift Wood form a flattering background. Informal and frankly natural, they offer a refreshing contrast to the highly refined wall finishes common to other wood panelling. If your usual supplier does not stock Drift Wood, he can order it for you. Standard panels, 8 x 4 feet, 3/8 inch thick.



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Seaboard Lumber Sales Co. Limited, Seaboard House, Vancouver 1, Canada

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Please send a free copy of the publication(s) marked below:

☐ Drift Wood folder (full color) L-6

☐ Seaboard Plywood Handbook, L-11

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Address.....

UK-56-9-14 (Please print plainly)

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FULLY AUTOMATIC BOILERS

**FOR EFFICIENT HEATING AND CONSTANT
HOT WATER IN EVERY TYPE OF BUILDING**

Here is the finest range of fully automatic gas and oil-fired boilers you'll find anywhere. Built for high efficiency, economy and long service, handsomely styled and supplied complete for easy installation and maintenance, Kayenco boilers are smokeless, safe, labour and space saving. For factories, flats, schools, shops, offices and private dwellings, there's a Kayenco model that's exactly right for the job—in size, power, performance and price.

OIL FIRED



**Kayenco
HIKON - MAJOR**

Specially engineered for oil-firing and incorporating the new principles of Hikon heat exchange. 80% guaranteed net efficiency. Fully automatic. Robust construction. 125,000 to 300,000 B.T.U.

Kayenco HIKON-JUNIOR

This smaller version of the Hikon-Major is outstanding for its remarkably low oil consumption and low first cost. Guaranteed 75% net efficiency. 25,000 to 100,000 B.T.U. 'K' Type: Fitted with fully automatic on/off operation Kieft vaporising burner. 'L' Type: Fitted fully automatic Lucas 'Oilomatic' low pressure burner.



GAS FIRED

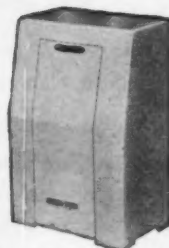
Kayenco SUPERB

Sets a new high standard in design and performance with every necessary feature for top efficiency, safety and cleanliness. Fully automatic. Thermostatically controlled. 30,000 to 300,000 B.T.U.



Kayenco POPULAR

The lowest priced, fully automatic, domestic boiler of its type, built to the traditional engineering standards of the Kayenco Superb.



All KAYENCO Boilers comply fully with B.S.S. Recommended by the Gas Council, Council of Industrial Design, Good Housekeeping Institute. Widely used by Government Departments, H.M. Forces, County and Local Councils and many industrial concerns.

KAYENCO

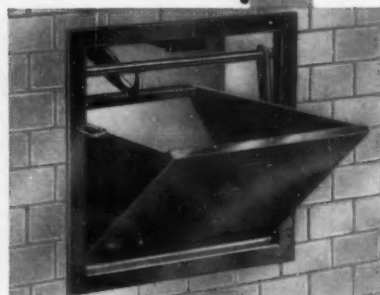


BOILERS

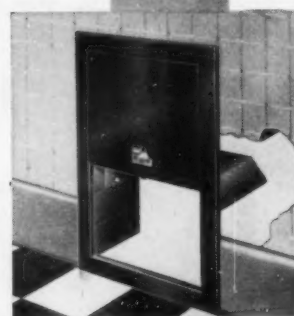
MADE AND GUARANTEED BY THE SPECIALISTS IN
OIL AND GAS-FIRED BOILERS AND BACKED BY
FULL SERVICE - AFTER - SALE :

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Increasingly
specified
for
Domestic
Use



*Above: FUEL HOPPER open
to receive fuel delivery.*
British Patent No. 728058



*Right: EXTRACT HOPPER
open for the
removal of fuel.*

THE FINCH FUEL INTAKE AND EXTRACT HOPPERS

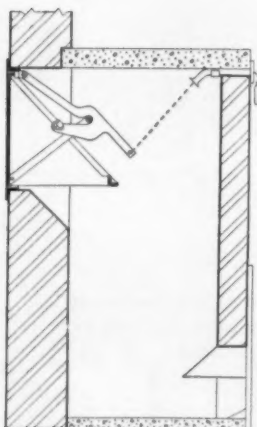
Designed to eliminate certain disadvantages found in ordinary fuel hoppers, the Finch Fuel Intake and Extract Hoppers are the ideal type for domestic use.

The fuel hopper has no projecting handles or locks, cannot be opened from the outside when closed, and cannot be fouled or obstructed during deliveries.

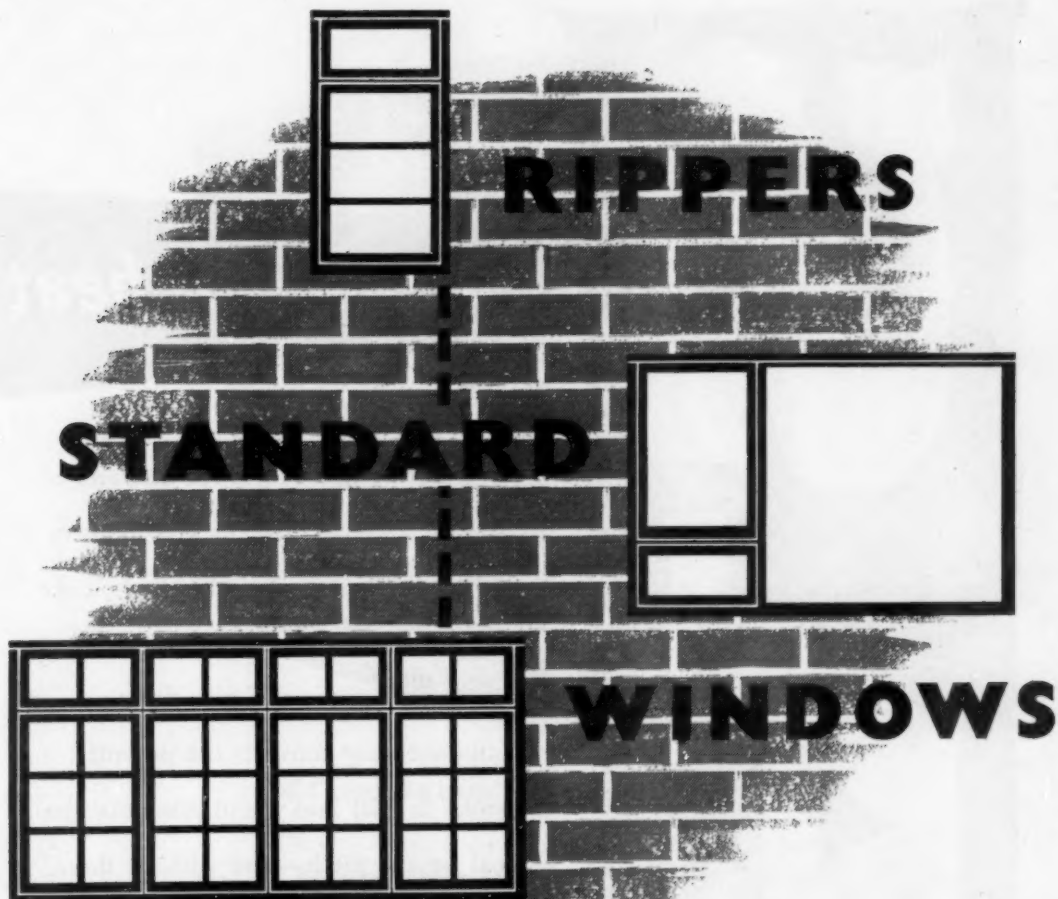
The extract hopper completes the operation by allowing the tenant to obtain the fuel from inside the building and at a point convenient for the fire or boiler.

Both Finch Fuel Hoppers are being increasingly specified for domestic use throughout the country.

Please write for full details to the address below.



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Showrooms: **FINCH CORNER, 679/687 EASTERN AVENUE, ILFORD, ESSEX**



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best in
the
business'**

When you order windows, external door frames, internal door frames or kitchen units, make sure you buy Rippers—the finest standard joinery obtainable. Over sixty years experience is behind Rippers quality—'the best in the business'. *Write today for our free Catalogue: it describes over three hundred designs from which endless window combinations can be arranged: and includes descriptions of all our products.*

Apply for your free catalogue to Dept. AB20/9

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WOODWORK**

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TELEGRAMS: RIPPERS CASTLE HEDINGHAM.

LONDON OFFICE: 9 SOUTHAMPTON PLACE, LONDON, W.C.1. TELEPHONE: CHANCERY 8306/7



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By usefully harnessing three-quarters of the heat value in coal the Gas Industry offers two refined smokeless fuels, coke and gas. In addition the chemical engineering process of gasmaking simultaneously converts the potential smoke in coal into useful products like coal tar and pitch—and without these, expensive chemical imports would be necessary. Each of the Area Gas Boards offers expert advice to architects, building authorities and all engaged in providing smokeless heat. The advice is based upon the pooled knowledge of all the Area Gas Boards and the users of coke and gas in other countries.

consult your area gas board

THE GAS INDUSTRY MAKES THE BEST USE OF THE NATION'S COAL

The Gas Council, 1 Grosvenor Place London, S.W.1



Clothes drying

To many womenfolk the home washing machine has provided the most favoured labour saver. Yet drying is often still a nightmare, particularly in large blocks of flats. Many building authorities are now installing these gas drying cabinets as a necessary amenity. Likewise in laundrettes, school cloakrooms or communal laundries, fitted in a battery of single units, they provide quick and efficient drying. At your Area Gas Board, Heating Engineers have a wide experience of a vast number of different heating problems which they will gladly discuss with the architect or his client.

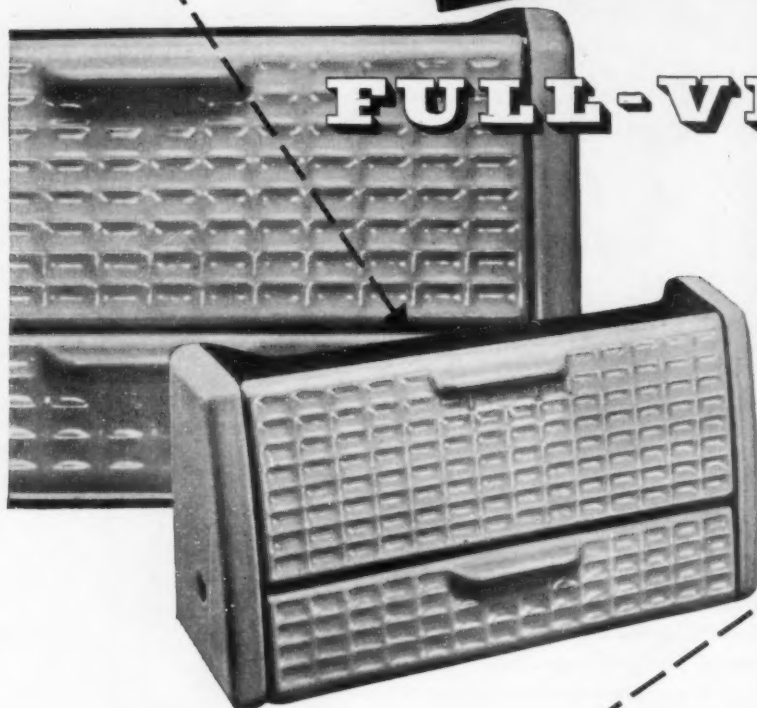
WHATEVER YOUR BUSINESS—The Gas Industry appreciates the needs of individual consumers for prompt service and for advice which accords with the customer's special circumstances and requirements. Each Area Gas Board offers efficient service to users of gas-fired equipment and can give expert advice based upon the pooled knowledge of all the Boards and of gas users in other countries.

—CONSULT YOUR AREA GAS BOARD

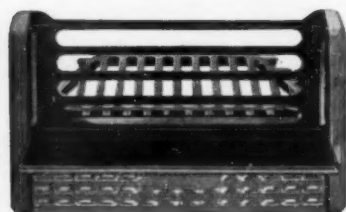


ISSUED BY THE GAS COUNCIL

THE GAS INDUSTRY MAKES THE BEST USE OF THE NATION'S COAL

The **NEW****SOFONO****FULL-VIEW
FIRE**

This is the latest addition to the famous range of continuous burning Sofono Fires. When lowered the drop front is only 3½" above hearth level. 16" size only at present. Literature on request.



SOFONO FIRES are available in four sizes—12", 14", 16" and 18", and in an attractive variety of self colours, mottles, and tortoiseshell. Vitreous and lustrous enamel finishes. Literature on request.



SOFONO ORIGINAL FIRE SOFONO LO-FRONT FIRE SOFONO DROP FRONT FIRE



GRANGE-CAMELON IRON COMPANY LIMITED, FALKIRK
A F E D E R A T E D F O U N D R I E S C O M P A N Y



Messrs, Howard Williams and Partners F.R.I.B.A., F.S.I., Chartered Architects and Surveyors

SPECIFY...

JONWINDOWS

STANDARD METAL WINDOWS to B.S.S.990/1945

PROTECTED BY HOT DIP GALVANIZING



MEMBERS OF THE METAL WINDOW ASSOCIATION

JOHN WILLIAMS & SONS (CARDIFF) LTD

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atlas

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Roofing of **extra** durability and stability—that's MAJOR SIX sheeting, a non-warping, material of increased covering capacity . . . and a side lap offering definite advantages.

MAJOR SIX sheeting is proving its adaptability to all constructional and weather conditions, giving —always— a dependable roofing service.

We would like to send you detailed technical literature and full information. Will you 'phone or write today



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NU-SWIFT

THE WORLD'S FASTEST AND MOST RELIABLE FIRE FIGHTING EQUIPMENT

Nu-Swift Extinguishers approved by the Fire Offices Committee

For Class A fire risks (fires involving wood, paper, textiles and other carbonaceous substances). No. 1301 Universal (Royal Navy) Extinguisher FOC Ref. No. 104/6

For Class B fire risks (fires on petrol, greases, oils, paraffin, white spirit and diesel oil).

No. 1400 Air Foam Extinguisher FOC Ref. No. 104/3

For Class C fire risks (minor electrical risks and small petrol fires).

No. 1003 Auto (CTC) Extinguisher FOC Ref. No. 104/5

For Class B & C fire risks (extra-hazardous fires involving spirits, alcohols, organic solvents and electrical equipment).

No. 2003 Auto (Chloro-Flash) Extinguisher FOC Ref. No. 104/7

These models comply with the B.S.S. where these exist.

Complying with British Standard Code of Practice (C.P. 402.401. 1951)

No. 1301 Universal (Royal Navy) Extinguisher for Class A fire risks. No. 1400 Air Foam Extinguisher Class B fire risks.

USED THE WORLD OVER

In more than 70 countries Nu-Swift extinguishers are proving that they are the fastest and most reliable in the world.

Why Nu-Swift are better

Nu-Swift extinguishers are the only ones on the market to combine these essential advantages:

Immediate action—instant pressure-charge operation eliminates wait for a chemical action to build up pressure.

Quicker recharging—all 2-gallon Nu-Swift extinguishers can be re-charged and back in use in 30 seconds.

Standard system—all Nu-Swift extinguishers are used in the common-sense upright position. There are distinctive colours for the models for different fire risks.

Greater reliability—Nu-Swift pressure charges produce a pressure that is always exactly right for fire-fighting, never too great for safety. They do not leak, evaporate or cause corrosion.

For extra safety in buildings old and new—always specify

NU-SWIFT

FIRE FIGHTING EQUIPMENT (IN EVERY SHIP IN THE ROYAL NAVY)

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Telegrams: NUSWIFT PICCY LONDON. Factory and Head Office: Elland, Yorkshire. Telephone: Elland 2852. Telegrams: NUSWIFT ELLAND



UNIVERSAL
(ROYAL NAVY)
MODEL 1301—

for Class A fire risks.
Water/CO₂ expellant;
39 ins. hose, double-
action nozzle for jet
or spray. 2-gallons
capacity. Recharged
in 30 secs. Approved
by FOC. Body
manufactured to
B.S.S. 1382.



AIR FOAM
MODEL 1400—

for Class B fire risks.
Air Foam/CO₂
expellant; 39 ins. hose.
2-gallons capacity.
Reloaded in 30
seconds. Approved by
FOC. Manufactured
to B.S.S. 740
(part 2).



AUTO (CHLORO-FLASH)
MODELS 2009

(Controlled discharge) and
2003 total discharge).
Chlorobromomethane/CO₂
expellant. Tamperproof.
One quart capacity. No
pumping. Approved FOC.
Body and fittings B.S.S.
1721.



AUTO (CTC)
MODELS 1003

(Total discharge) and
1000 (controlled discharge)
—for Class C fire risks.
Carbon tetrachloride/CO₂
expellant. Tamperproof.
One quart capacity. No
pumping needed. Approved
FOC. B.S.S. 1721.

Men who strive for perfection *specify*



malleable iron

pipe fittings



No need to cast about for dependable fittings when you can be sure of **GF**! With **GF** Pipe Fittings you have *all* the good points: finest British Whiteheart iron, clean bore, beautiful finish, accurate threading and perfect annealing, giving a high degree of malleability and maximum installation strength. The range includes all the patterns up to 6" pipe size necessary for Water, Steam, Gas, Oil and Air services, and is supplied in either black or galvanised finish.



LE BAS TUBE COMPANY LIMITED • CITY WALL HOUSE • 129 FINSBURY PAVEMENT • LONDON, E.C.2

Warehouses: LONDON, MANCHESTER, GLASGOW, BELFAST.

British made at Britannia Works, Bedford.



MASTIC What did he mean?

A pale yellow gum resin from the lentisk tree^{*}

A putty setting rock hard?

Or a permanently plastic, wholly reliable,

joint sealing compound, scientifically formulated and proved out in countless buildings all over the world?

Modern building techniques give rise to new and unusual joint sealing problems. There is the problem of movement, for instance.

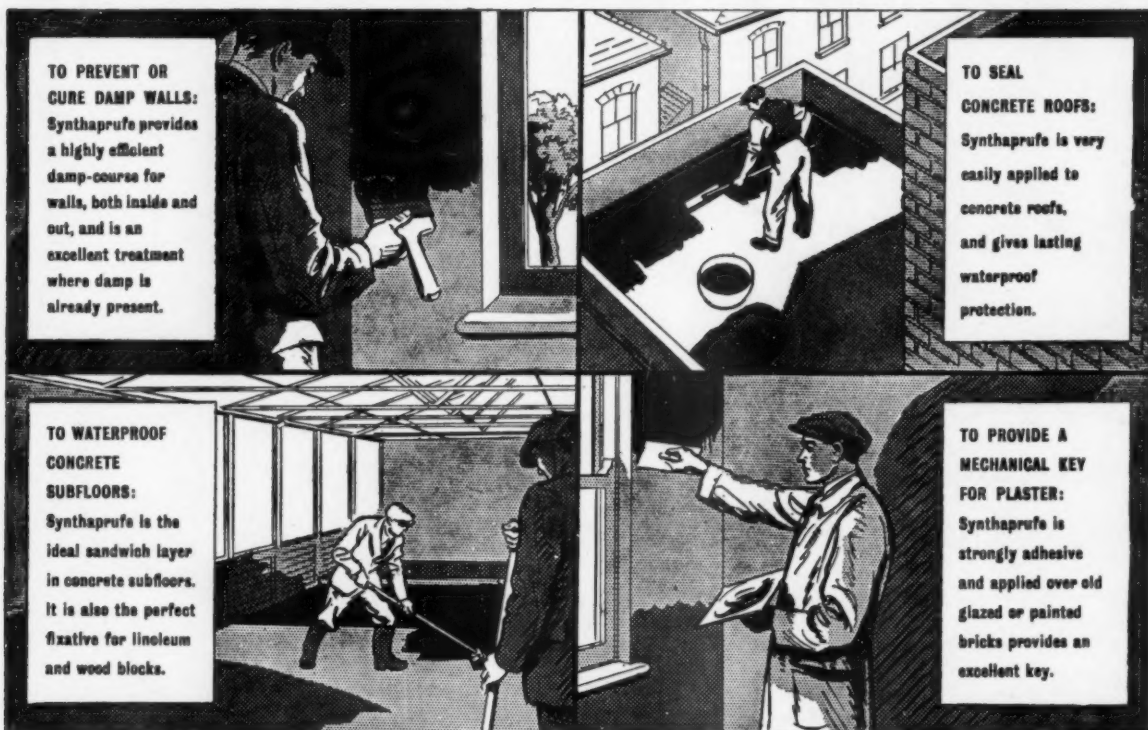
Joints in curtain walling or round window frames or in precast concrete construction require a non-setting sealing compound that will neither crack, perish or break bond. SECOMASTIC is such a material and has been used for years all over the world for vulnerable joints of this kind.

It is nowadays not enough to indicate 'Mastic'—it has too important a function to allow others to interpret the term. **Brand choice should be an architectural responsibility**

^{*} One dictionary definition of the term 'mastic'

A brush-on waterproofing that contains rubber...

ELASTIC, ADHESIVE, IT MAKES AN IDEAL JOINTING



SYNTHAPRUFEE is a waterproofing compound which can be applied cold by brush; its rubber content makes it strongly adhesive, and it sets quickly and forms a strong, elastic, moisture-proof film.

Most surfaces will take Synthaprufe—concrete, plaster, brick, metal or timber—and it is equally effective on old or new buildings.

Synthaprufe is also highly effective as a vertical damp-course on either external or internal surfaces, and is most valuable for treating damp in existing walls.

When applied over old and shabby glazed brick or painted brick wall surfaces (e.g. in hospitals, institutions and factories) Synthaprufe provides an excellent mechanical key for plaster finishes. This process obviates the noise, discomfort and expense of hacking.

When Synthaprufe is applied to inside walls it may be finished in distemper, wallpaper, or emulsion paint; full instructions will be furnished by the manufacturers.

Synthaprufe offers the architect, builder, and engineer a waterproofing and jointing material of unusual efficiency and versatility, ready to use and easily applied.

Some special uses

- Sealing concrete structures above and below ground-level, cooling-towers, etc.
- Protecting concrete piles, steelwork, sewer-pipes, and joints, etc.
- Waterproofing old asphalt, lead, zinc, corrugated iron, or felted roofs.

SYNTHAPRUFEE

Manufactured by the  National Coal Board

Synthaprufe is a product of British Coal. Further details, and advice on any technical problem, will gladly be given on application to the National Coal Board, By Products, National Provincial Bank Buildings, Docks, Cardiff.

"Synthaprufe" is a Registered Trade Mark

"TURNALL" "Colourglaze" FINISH



-the brightest idea yet in asbestos-cement roofing....

.....and it's ideal for cladding, too!

- * PERMANENTLY DECORATES
- * APPLIED DURING MANUFACTURE
- * CORROSION RESISTING

"EVERITE" and "TURNALL" Roofing Products to which "TURNALL" "Colourglaze" finish has been bonded possess an attractive colourful surface which cannot readily fade or wear. The finish, which is acid resisting, is works bonded to the asbestos-cement. "TURNALL" "Colourglaze" finish is available in a wide range of colours.

Only six of the available colours are shown in this advertisement. Please write for full details of range.

The colours shown are facsimile, subject to the limitations of reproduction.

TURNERS ASBESTOS CEMENT CO LTD
A MEMBER OF THE TURNER & NEWALL ORGANISATION
TRAFFORD PARK MANCHESTER 17



Cement Prodor

A self hardening cement giving protection from corrosion in most acid conditions.

'Asplit' Cement

This cement is resistant to oils, solvents and mixed acids and alkalis.

'Furacin' Cement

Used as an alternative to Asplit. It possesses very great resistance to acids also caustic alkalis.

C.N.S.L. Cement

A cement of the cashew nut resin type, it possesses greater resistance to oxidising acids than any other resin cement.

our CEMENTS · MASTICS & COATING MATERIALS

are world famous for the
prevention and control of corrosion

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EAGLE WORKS, WEDNESBURY

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ARTILLERY HOUSE, ARTILLERY ROW, S.W.1

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*Specified
for the best bathrooms*

THE **LEDA**

HOT WATER TOWEL RAIL

A bathroom fitted with a 'Leda' hot water towel rail always wins approval—for its owner, for its designer and for its builder. This rail gives the bathroom a luxurious look, and the luxurious feeling that comes from constant dry, well-aired towels and constant warmth. The 'Leda' both in design and specification is undoubtedly the finest hot water towel rail on the market.

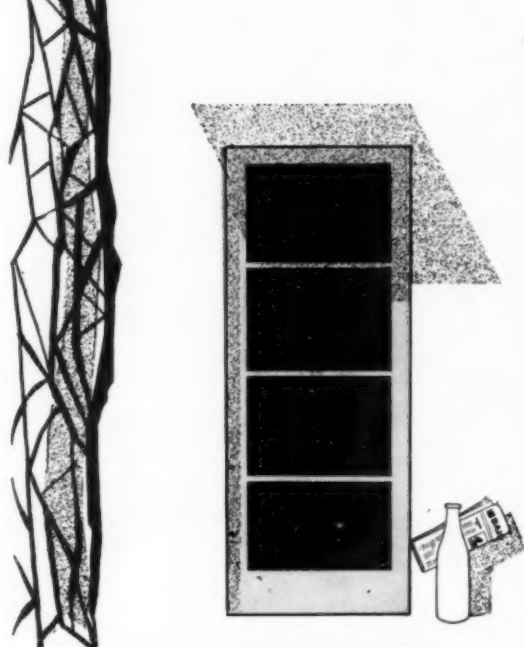
- Patented method of assembly which ensures leakproof joints.
- Two air release valves operated by a coin—no keys to lose.
- High standard chromium plating on nickel.
- Available in two and three rail models to suit every bathroom.
- Individually tested at 120 lb. per square inch air pressure in hot water.

See the Leda at the Building Centre, Store Street, London, W.C.1, or write for descriptive leaflet to:—

W. C. YOUNGMAN LIMITED

Makers of LEDA Matched Bathroom Accessories.

MANOR ROYAL, CRAWLEY, SUSSEX Telephone: CRAWLEY 1234 (5 lines)



FLUSH DOORS

KITCHEN UNITS

WOOD WINDOWS



For all standard joinery

Austins are renowned for producing high quality Standard Joinery of sound workmanship, at economical prices. Moreover, Austins maintain a delivery service second to none—with doors, windows, Kitchen Units and all standard joinery in stock ready for immediate delivery.

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Please send me your free catalogue



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Address.....

County.....

State Business..... (Please use block capitals) ABN.3

Austins
of EAST HAM—

The biggest name in joinery

50 YEARS OF
JOINERY

AUSTINS OF EAST HAM LTD

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GRANGEWOOD 3444-9

THE PARENT COMPANY OF

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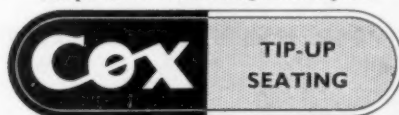




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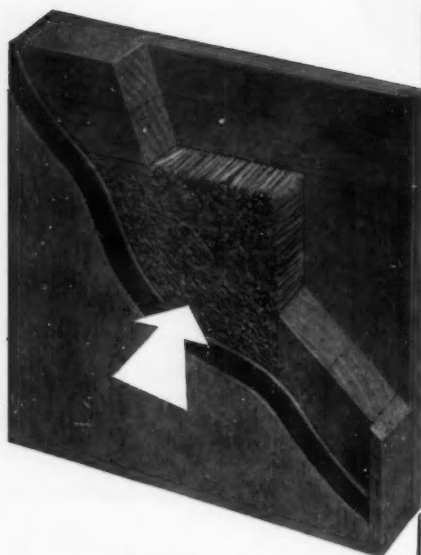


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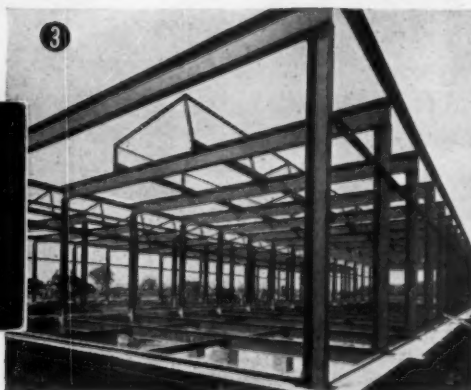
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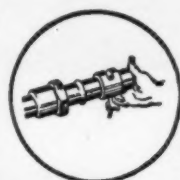
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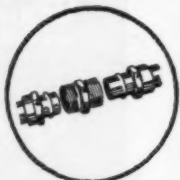
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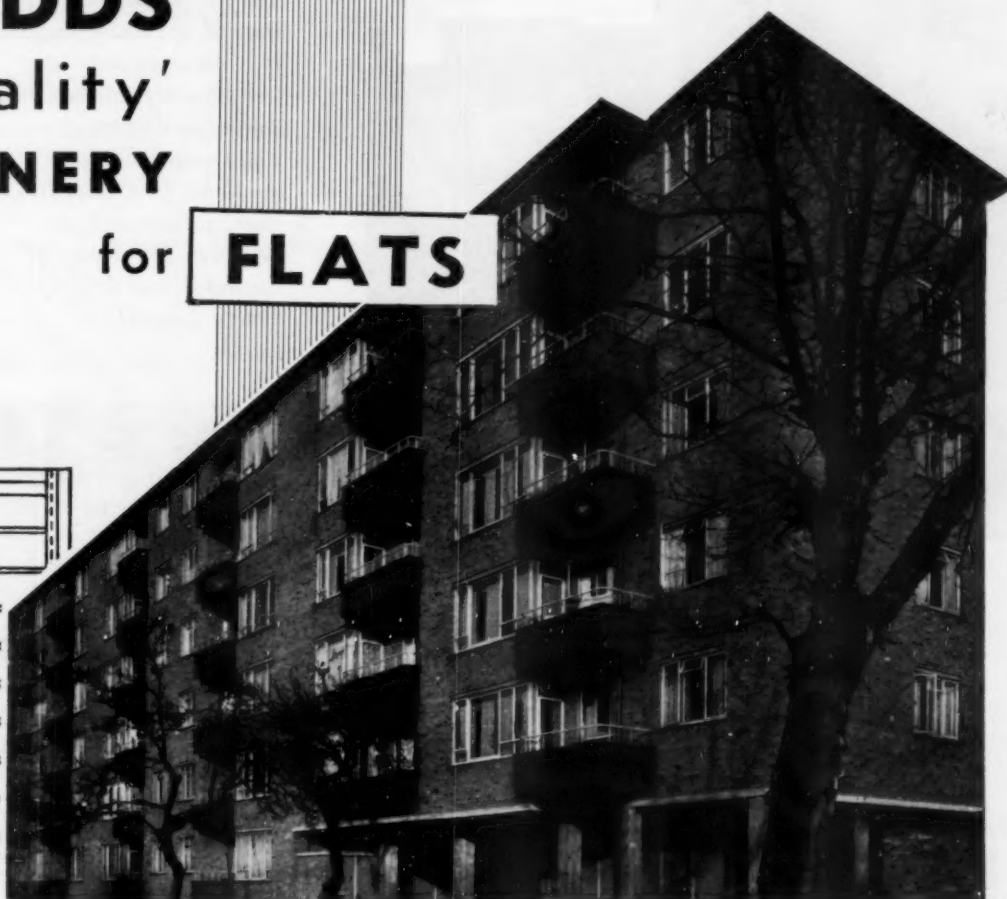
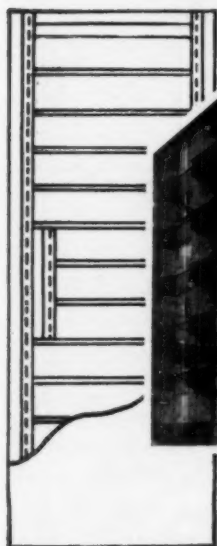


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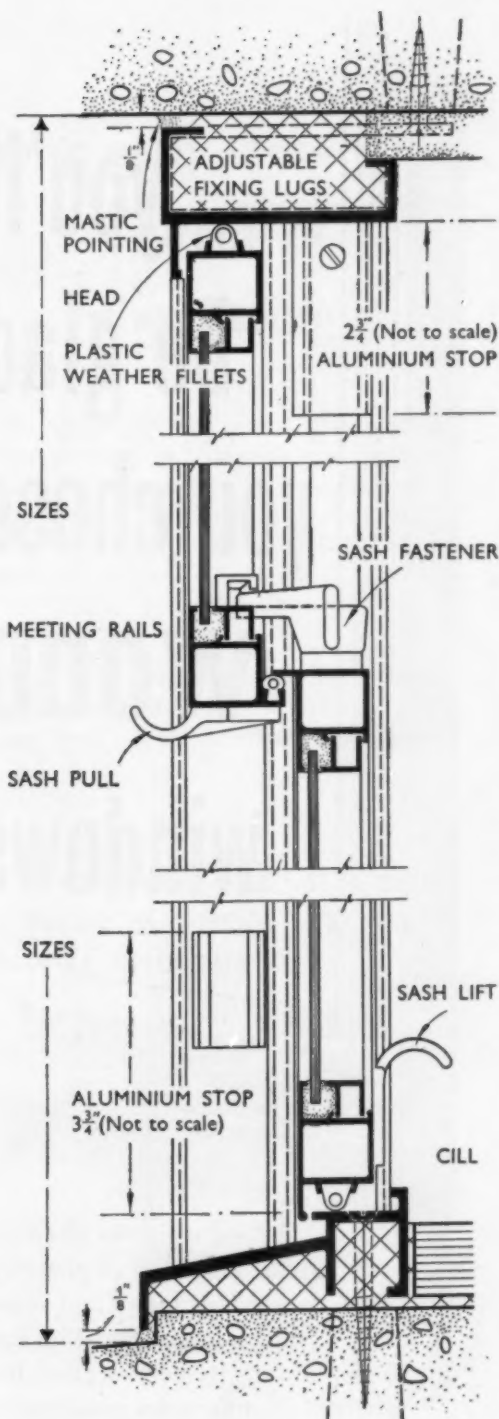
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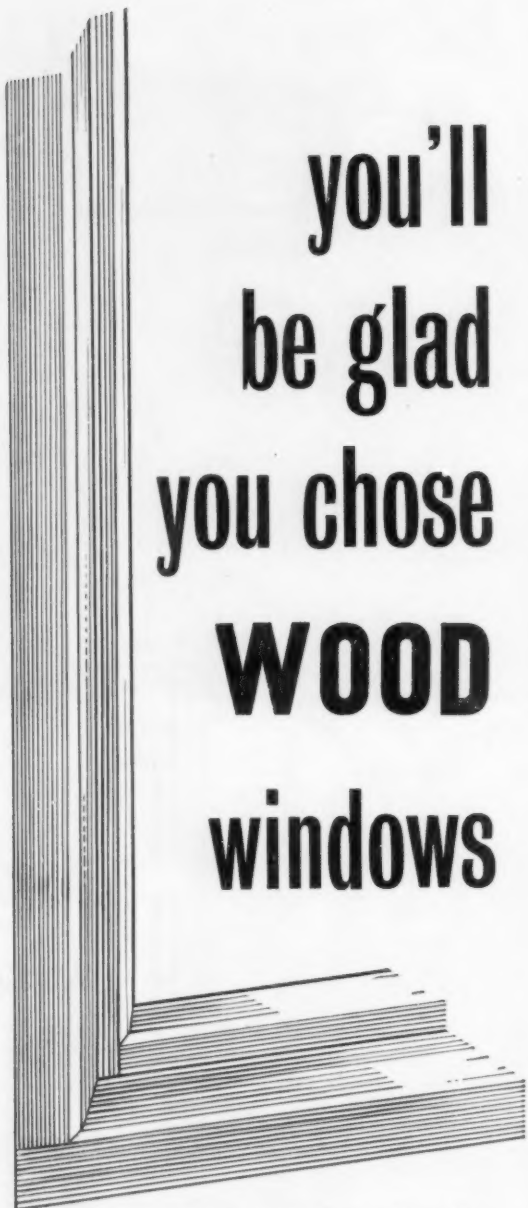
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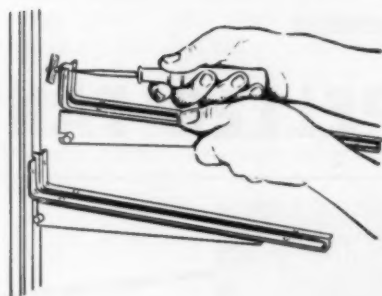
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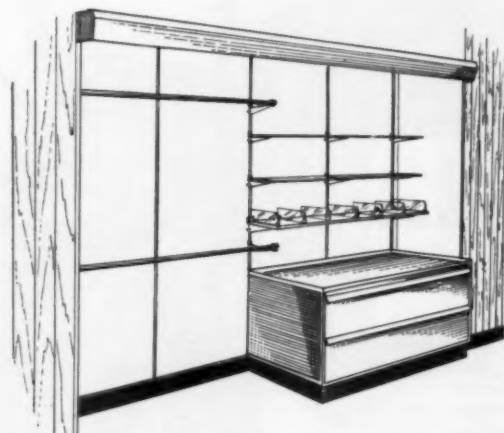
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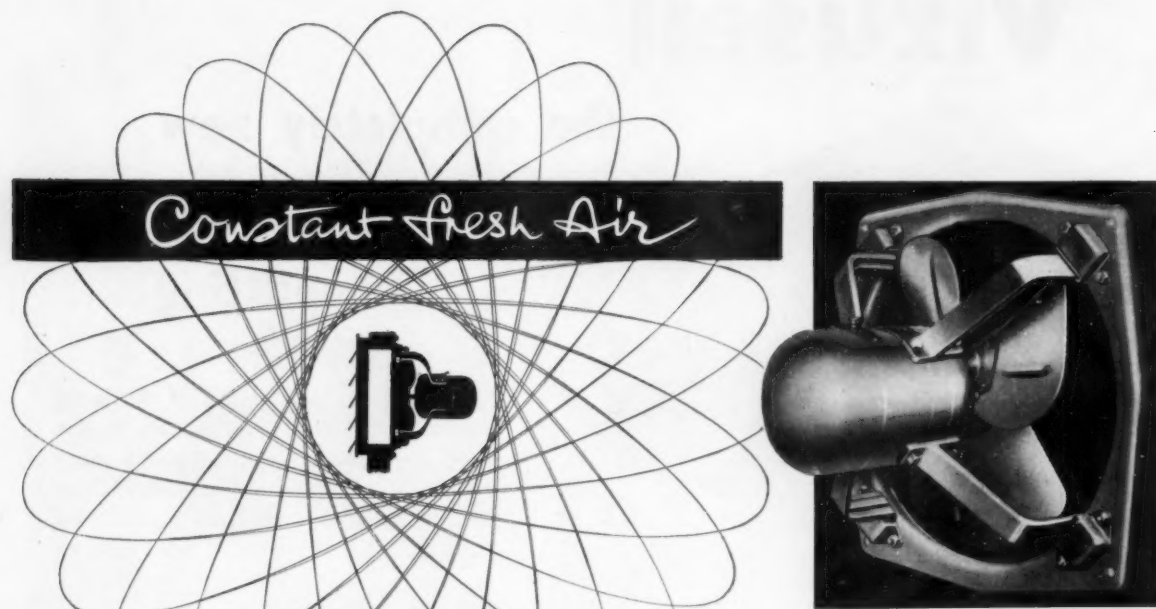


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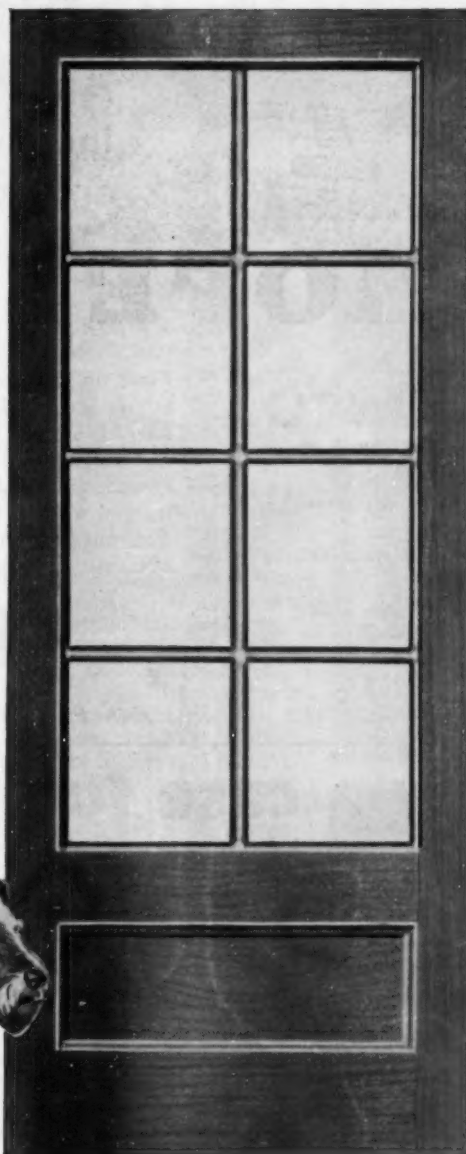
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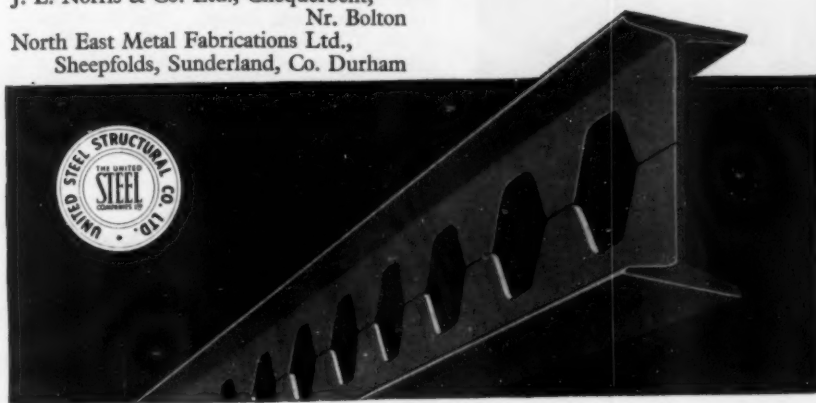
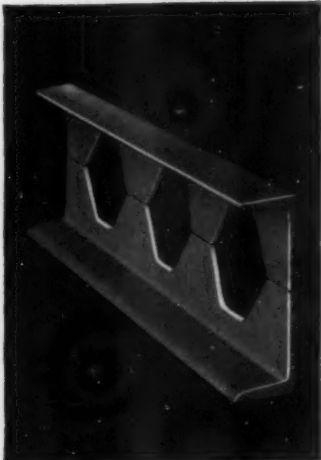
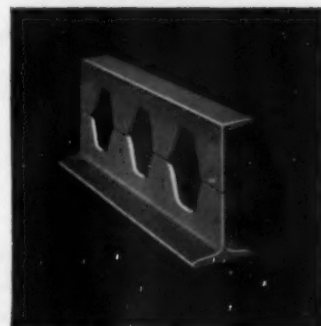
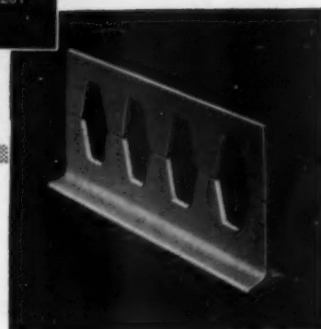
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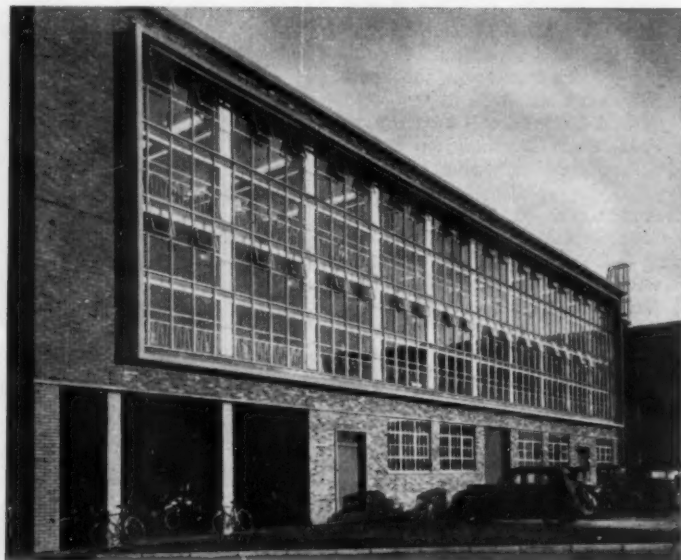
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* See M.O.E. Building Bulletin No. 13
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THE GARDEN CONTROVERSY

THOSE at Wye College responsible for the series of studies in rural land use are to be congratulated on Report No. 2, which gives a critical analysis of the evidence and arguments relating to the production of food from gardens and farmland. Planning authorities and all who are responsible for development schemes, particularly housing, will find this report* worthy of close study.

One of the main features of the garden controversy has been the problem of whether gardens produce as much food (mainly fruit and vegetables) as farmland. The Wye College report finds that: "If the 'average' housing estate with only about 14 per cent of its area cultivated, is compared with better-than-average farmland (the type of land that is most likely to be taken for development) the value of output to the nation is found to be roughly the same in both cases, when allowance is made for the saving in distributive costs which result from growing food domestically instead of on the farm. The actual figures are £42 per house plot/acre compared with £45 per acre for cultivated farmland".

The trouble with statistics, which the report appears to recognize, is that figures can so often be made to fit a number of different comparisons. It must not be forgotten that the house plot/acre in the above findings refers only to the areas taken up by plots, including house gardens and paths, etc; main roads, service roads, shopping centres, garages—all non-productive areas but essential attributes of a modern housing estate, are excluded in the calculation. Furthermore the cost of comparison is based on farm-gate prices for cultivated farmland produce while that from gardens is calculated at retail prices. This may be fair enough in terms of cash, but what if the value to the nation is measured in volume of production?

There would seem to us to be an inherent weakness in measuring rows of beans, peas, lettuces and other food-stuff in a garden, because its owner may go on holiday

or prefer to play tennis or golf at the crucial moment of harvesting. Who has not experienced a surfeit of lettuces served at almost every meal, in order to prevent half the crop bolting?

The argument has sometimes been advanced that gardens can grow only a very limited range of crops—mainly fruit and vegetables—that cannot replace the basic farm commodities of milk, meat and cereals lost through development of agricultural land. The report considers that this point of view: "ignores the scale of the problem, for the probable loss of land to urban use will lead only to a small fall in the output of livestock products and cereals which could in fact be more than replaced by higher production elsewhere". In support the report quotes interesting figures for agricultural productivity, apart from domestic food production: "the increase in the value of gross output for the United Kingdom is of the order of £20,000,000 or over 3 per cent per year, while the present annual net loss of farmland to urban development in England and Wales is about 35,000 acres—presumably better-than-average land. This represents a loss of output totalling about £1,575,000."

Perhaps the most useful investigation reported is that relating to the influence of housing density on garden use. The report gives warning that although no mathematical relationship between density (houses per acre) and proportion of house plot cultivated can readily be established for the country as a whole, a fairly clear relationship does in fact seem to exist at least in the towns where garden surveys have been carried out.

The report states: "The evidence available indicates that the proportion of a garden which is cultivated tends to increase with decreasing density of housing, at least in the case of local authority estates. Without further information it is impossible to make a reliable estimate of the level of food output at various densities

* "The Garden Controversy", price 3s from the Secretary, Wye College, near Ashford, Kent.

of housing, but it is clear that the argument that building at higher densities will result in a considerable saving of food cannot be substantiated. Higher densities can result in only a small saving of farmland, relative to the total area of our agricultural land, and the reduction of garden size will, without doubt, adversely affect domestic food production which can help to replace the lost agricultural output. On the other hand, development at more open densities, while allowing for the provision of gardens of a reasonable size, would still lead to only a comparatively small loss of output from agricultural land which would probably be offset, or more than offset, but the production of fresh food at low cost by the consumers themselves."

This aspect of the matter is worth wider investigation to see in which areas of the country housing density might, with advantage to food production, be raised or lowered.

EVENTS AND COMMENTS

TWO CHURCHES OF ST. LEONARD

Those who know the south coast from Eastbourne to Hastings may remember St. Leonard's Parish Church, which used to stand in a gap along the front, facing the sea, just before Decimus Burton's Crown House is reached at St. Leonards-on-Sea. The church was destroyed by a V.1 flying bomb in July, 1944, and out of the ruins—up to three years ago of morbid interest to trippers—has arisen a restored church designed by Adrian Gilbert Scott. Rededication of the new church by the Bishop of Chichester took place recently, on the same day as a new brick church was also dedicated to St. Leonard at Pachod in India, by the Bishop of Nazik. The new Pachod church, replacing one of mud, was made possible by the help given generously by the Sussex congregation to their own church, the cost of which was borne largely by the War Damage Commission.

My picture shows the boat-pulpit of the St. Leonards-on-Sea Church, an inspiration of the Rector, Canon C. C. Griffiths, to whom the idea came as the result of a dream. Canon Griffiths was in Israel a few years ago, managed to obtain the timber—oak of Basham, had the prow made by boat builders of Galilee, and shipped it to England.

Externally the church is missing the tower (which Mr. Scott tells me will be a tall one) to complete the elevation facing the sea. The approach from the sea front has been improved by widening on both sides, thanks to the Borough Council retaining as grassed open spaces, sites of two houses, the ends of terraces along the promenade, also demolished by the bomb. No one was killed. Jerry in this respect did a good job. Immediately behind the church is a steeply rising cliff half



Boat-pulpit at St. Leonard's Parish Church. The stone in the background is blue Hornton.

covered with trees, and half is at present a subtopian rubbish dump.

I do hope the Borough Council, or whoever is the responsible authority, will not miss an opportunity of completing the backcloth of trees and planting; for the site is a unique one and comes as a surprise and welcome break amidst the seafront terrace blocks.

NO DRAUGHTS PLEASE

I am pleased to note that "awnings and windbreak screens", according to the handout largely of tubular steel with enclosing panels and completely independent of the platform buildings, will be provided with the new station which the British Transport Commission has announced will be started soon at Leytonstone High Road Station, as part of the Eastern Region's modernization programme.

I hope the screens will really keep out the wind and if seats are placed next to them, there are no apertures for draughts in the wrong place. Silly as it may sound, I have seen where this has happened in the case of some seat shelters for a transport building well known to people who travel by air.

PIERCING THE SKYLINE

Last week's announcement that the proposed Commonwealth Hotel, Portman Square (A. & B.N., May 10), has received outline planning approval by the L.C.C., is a reward to the tenacity of architect Leo Hannen. I am told that the consent was given in spite of opposition from the Royal Fine Arts Commission who refused their blessing twice. The approved block which is a cut-down version of the one published in the A. & B.N., will be nineteen storeys, rising 190ft with 800 bedrooms and is estimated to cost £m.4 to £m.5.

I have not seen the plans of the hotel scheme and am, therefore, in no position to judge it. The *Observer*, commenting on London's skyline last Sunday, welcomes

the occasional high building in a City; but adds the important point that because of its prominence good architecture is more important than ever. I quite agree.

ARCHITECT FOR THE DOME

William Porden, Architect for the Dome, Brighton's Royal Pavilion, which was built as the Royal Stables in 1803-1808, has received recognition in the form of a stone plaque unveiled last week and presented by the Association of Master Monumental Masons as a souvenir of their Annual Conference which was held at Brighton this year. Porden is not widely known and his work has been overshadowed by Holland and Nash. I am glad he has been given prominence.

ABNER

Correspondence

Brussels Exhibition

Sir,—I have just read with interest particulars in your issue, dated August 16, of the British Industrial Pavilion proposed for the Brussels Exhibition.

I can remember as a student, at the end of a tour of Austria, visiting the Brussels Exhibition in 1935. In those days we were highly critical of architectural design, but I remember that my colleague and I were unanimous that the British Pavilion was the best in the Exhibition, and if I remember correctly there was no lettering defining the nationality of our Pavilion, it was so typically British, and we were very proud to hear, as we walked round, so many complimentary remarks.

It appears from your article that money is not lacking for the current proposals, and I hope that the design when finalized will be as successful and bear the national feeling of today in the manner in which its predecessor was so outstanding.

Yours, etc.,

KENNETH WAKEFORD

The Ring Circuit

Sir,—Mr. T. C. Gilbert's article on this subject in your issue of August 30, 1956, is very welcome since, as he says, "many architects still stick to the older methods usually through inadvertence". The old term "power point" dies hard although it was associated with high cost and inconvenience due to the different sizes of plugs needed in a house wired on the old system.

The gain in convenience in the daily use of electricity by having only one size of socket and by being able to plug any piece of apparatus, from a small lamp to the largest fire, into any socket is really very great. In many households today one finds as minimum equipment in daily use a number of table and standard lamps, radio and television receivers, electric iron, vacuum cleaner, one or more electric fires, refrigerator, washing machine, kettle, electric blanket and one or more clocks, and the householder manages to use them in spite of the fact that there is probably only one plug point in each room.

This is achieved by the use of multi-way adaptors and long flexible cords trailing round the room and by having to unplug some other appliance when, for example, the vacuum cleaner has to be used. That such arrangements are dangerous due to overloading and heavy wear and tear on the cords need not be stressed too highly, but they suffer most by their lack of convenience.

Electric appliances should not be tied to one corner of the room merely because the one and only socket happens to be there; to use a longer flex is obviously undesirable. There should be a socket wherever it is likely, either now or in the future, that a supply of electricity will be required for the use of any type of appliance. The ring circuit is the answer to all these problems as it has made possible the adequate provision of plug points at a reasonable price per point. The price is likely to be somewhat less than Mr. Gilbert infers since his reference to the "13th edition", which most architects will recognise as the latest edition of the Regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers, is not quite up to date. When he says on p. 309 that there is a limit of 10 socket outlets per ring circuit in houses not exceeding 1,000 square feet floor area he refers to the 12th edition of the Regulations, which has now been superseded.

If anyone has turned up the 13th edition he will find in table C, that there is now no limit to the number of socket outlets installed on any ring circuit provided it does not cover more than 1,000 sq ft of floor area.

The ring circuit requires only one thing for its universal success, namely, that practising architects will specify it in all new building work.

Yours, etc.,

J. I. BERNARD.

Cardiff "City Architect"

Sir,—It would appear that all that has been achieved after years of endeavour to persuade the Cardiff City Council to fall into line with the more enlightened authorities at Swansea and Newport (Mon.) is to change the title of the job of Chief Architectural Assistant to City Architect.

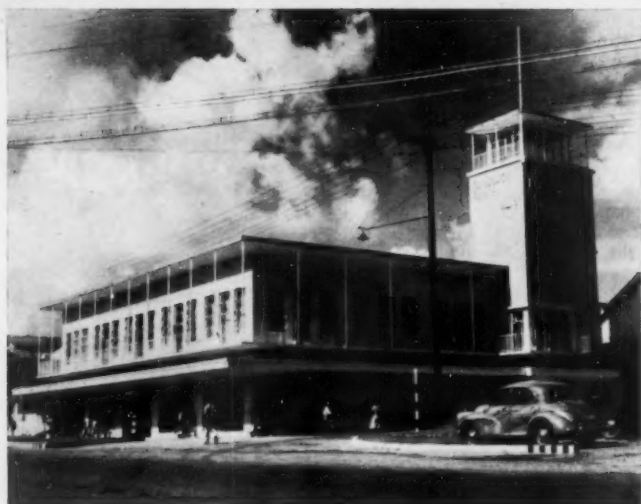
One is tempted to ask when is a City Architect not a City Architect? the answer is certainly—when the city is Cardiff. It might be superficially attractive to potential candidates to contemplate the enjoyment of a more exalted title but in fact the job is no more than Chief Architectural Assistant under the City Engineer.

The City Council are mistaken if they believe that this device will settle the controversy; fundamentally the position is unchanged and the present move is recognised as a manoeuvre by the capital city of Wales to obtain the services of a nominal City Architect at a lower salary than what the Joint Negotiating Committee lays down they should pay for a *real* City Architect.

The title of City Architect in every other case applies to an Architect *chief officer* in control of a separate department and the strongest possible objection is taken to the depreciation of this standard by Cardiff. Candidates of the required sense of responsibility will not be deceived by the misnomer.

Yours, etc.,

A REAL CITY ARCHITECT.



Store, Georgetown, British Guiana. Contractor, John Mowlem & Co. Ltd., from the Exhibition: "Britain Builds for the World".

NEWS

(Archibald Dawnay) Trust Prizes 1956-1957

The R.I.B.A. (Archibald Dawnay) Trust Prizes for 1956-1957 have been awarded as follows: £60 each to: J. H. Williams of the Birmingham School of Architecture; A. Eardley of the Architectural Association of Architecture; J. A. Dalton of the Architectural Association School of Architecture. A renewal of the Prize of £60 awarded for the session 1955-1956 each to: A. Cotterell of the Birmingham School of Architecture; J. R. A. Wilson of the Architectural Association School of Architecture; D. E. Thomas of the Liverpool School of Architecture; G. A. Williams of the Welsh School of Architecture.

Artist-Engineers R.C.A. Course

A four-year-course for boys leaving Public and Grammar Schools has been worked out by the Royal College of Art in order to train artists for the relatively new and developing branch of engineering which is concerned with the aesthetic aspect of its products.

It is hoped that the first course may begin in the Autumn of next year and in the meantime the proposed syllabus has been discussed between the Principal of the College, Mr. Robin Darwin and a number of Headmasters of schools. A pamphlet on the scheme, it is understood, is now being prepared for the benefit of others.

With the opening of the new academic year this month the Department of Engineering Design at the College has been renamed Department of Industrial Design (Engineering).

Bradford's Churches

For some years moves by Bradford's City Council to sell Corporation land for churches has been banned by the Labour majority of the Council who hold the view that it is against the party's principles to sell Corporation-owned land. This veto has prevented the Church of England from building new churches on Bradford housing estates because of the ecclesiastical law that a church may be dedicated only on freehold land. The same rule applies to Roman Catholic churches. Transport House, it is reported in the *Yorkshire Post*, have now

THE ARCHITECT and Building News, 20 September 1956

asked the local Labour Party to reconsider the present policy and point out in a letter that Bradford are alone in the country in taking this attitude.

Britain Builds for the World

An exhibition with this title has been organized by the N.F.B.T.E. and will be opened on September 18 by Mr. A. R. W. Low, D.S.O., C.B.E., M.P., Minister of State, B.O.T. The exhibition will remain open at the Booking Hall, Charing Cross Underground Station until October 9.

Appointment

Mr. Enoch Powell, Parliamentary Secretary to the Ministry of Housing and Local Government, has appointed Mr. J. Palmer to be his Private Secretary in succession to Mr. J. E. Hannigan.

B.S.I.s A.G.M.

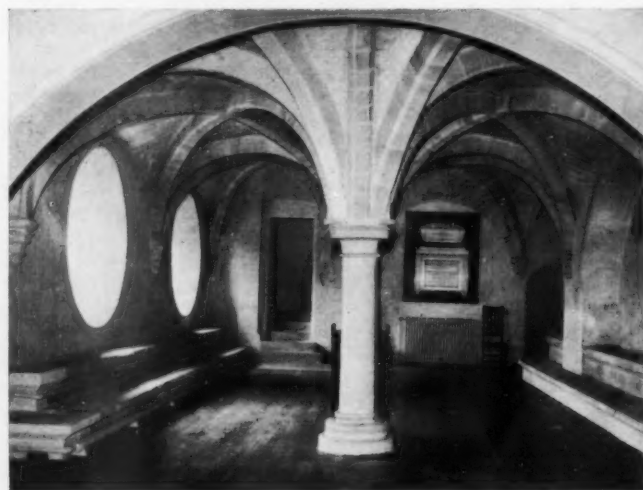
At the annual general meeting of the British Standards Institution in London recently (Tuesday, September 4) a move was made to streamline B.S.I.s organization by combining the two formerly separate offices of President and of Chairman of the General Council. Sir Herbert Manzoni (Birmingham's City Engineer), who is already Chairman of Council, was elected the first President under this new agreement. He succeeds Sir Roger Duncalfe, Chairman of British Glues and Chemicals Ltd., who in the past 20 years, has held all the principal offices in B.S.I. Mr. John Ryan (Vice-Chairman of the Metal Box Co. Ltd.) was re-elected Vice-President of B.S.I.

The following were elected, as representatives of B.S.I.s divisional councils, to serve on the General Council: Building Division: Mr. H. A. Pursey (Sales Director of Turners Asbestos Cement Co. Ltd.); Mr. J. C. Tait (Senior Quantity Surveyor of the Department of Health for Scotland); and Lt.-Col. E. Vigor (Managing Director of the Neuchatel Asphalt Co. Ltd.).

Chemical Division: Mr. G. J. Cutbush (a Director of the Metropolitan Leather Co. Ltd.); Mr. G. Dring (Research Director of Bakelite Ltd.); and Sir Knowles Edge (Managing Director of W. Edge & Sons Ltd.).

Engineering Division: Mr. P. L. Jones (a Director of

Dr. G. C. Chase, Bishop of Ripon, rehallowed the Cathedral chapter house on September 15. The arch replaces an earlier partition wall. Complete repairs to the building will take another 10 years.



Swan Hunter & Wigham Richardson Ltd); Mr. G. L. Newman (Secretary of the Chief Engineer's Committee of Metropolitan-Vickers Electrical Co. Ltd); and Mr. B. E. A. Vigers (Assistant Managing Director of Laporte Industries Ltd.).

Textile Division: Mr. H. N. Aitken (Manager of Merchandising and Procurement of Knitted Fabrics Department of British Celanese Ltd.); Mr. L. F. Cockroft (a Director of John Cockroft & Sons Ltd.); Mr. P. W. Gaddum (a Director of H. T. Gaddum & Co. Ltd.); and Mr. E. R. West (Research Chemist of Jute Industries Ltd.).

British windows for U.S.

Last Wednesday's protest by the Crittall Manufacturing Co. on the United States Defence Department's rejection of a steel window shipment to an American contractor working for Army engineers at Medina, Texas, may lead to the U.S. taking down the "No foreign goods allowed" sign on its major building projects.

Crittalls despatched the shipment but the Defence Department refused to take delivery because the frames were imported. Crittalls complained to the British Embassy in Washington who have taken the matter up with the U.S. State Departments. A policy statement is now awaited.

Authoritative Government circles look upon the protest as round one in the skirmish for the repeal of the "buy American" law born in the dismal days of the depression.

Law and Administration

A Contractor's Liability

A contractor carrying out works on land has many duties; some of the more important of these were considered recently by the Court of Appeal in *Riden v. A. C. Billings & Sons Ltd.* The facts in that case were fairly simple. The approach to the front door of No. 25 Cambrai Place, Cheltenham, had been left in an unsafe state by contractor's workmen one winter evening. There was a back entrance to these premises but that was locked every evening at five o'clock. Though the approach was unsafe the contractors gave no warning of any danger, but advised the wife of the office caretaker to get into the house via the courtyard of No. 26; this advice was passed on to the plaintiff who was visiting the caretaker's flat after dark and was injured. Lord Justice Denning said:

"At the outset I desire to stress that we are concerned here, not with the habitat of an occupier of land, but with the liability of a contractor who is doing work on land. There are many authorities which show that the contractor's duty is not confined to his duty under the contract to his employer. He is under a general duty imposed by law to use reasonable care to prevent damage to persons whom he may reasonably expect to be affected by his work. . . ."

The cases show, moreover, that the duty of care is owed to all those whom the contractor may reasonably expect to be affected by his work, whatever the capacity in which they come, whether as invitees or licencees or as other contractors . . . or even, in some cases, as children trespassing [see report of *Davis v. St. Mary's Demolition Co. Ltd.* (A. & B.N. 20:1:55) and *Creed v. McGeogh & Smith Ltd.* (A. & B.N. 19:1:56)]

The Lord Justice went on to point out that the duty of care is not confined to contractors but rests on any one carrying out work on land because the duty arises out of the fact that the person doing the work knows or ought

to know that the work he is doing may bring danger to others. Dealing with this particular case Lord Justice Denning observed that:

"The . . . defendants are liable, not because they are occupiers, but because they created a dangerous state of things and they are under a duty to use reasonable care to prevent damage from it. It is true that they are under no duty to visitors to provide an alternative route for getting to the front door. (They might in some circumstances fulfil their duty of care to visitors by putting up a warning in clear terms 'Danger. Keep Out'; for that might suffice to prevent damage to them. The *occupants* of the house might then have grounds for complaint for blocking their access, but visitors would not.) If, however, contractors do provide an alternative route, on or off No. 25, or adopt an alternative route, or point one out, as the . . . defendants did here, or if it is an obvious deviation for a visitor to take, the contractors are under a duty to use reasonable care to prevent damage to visitors who take that route. A contractor who creates a dangerous state of things cannot escape the consequences by leading people into another danger."

Lord Justice Birkett was explicit in what action would have sufficed to discharge the contractors' duty of care. In the circumstances he said:

"The . . . defendants were under a duty to use reasonable care to see that in the situation they themselves had created, no harm should come to persons who might reasonably be expected to enter or leave the premises by the front door. Knowing as they did that persons would wish to use the front entrance, and that they had destroyed the only safe way, they did nothing to fulfil the duty which I think rested on them, and are in consequence in breach of their duty to the plaintiff."

The court also considered whether the knowledge that the plaintiff had of the danger disabled her from claiming and concluded that it was not. Lord Justice Denning replied on an earlier judgement of his in which he said:

" . . . knowledge of the danger is only a bar where the party is free to admit, so that his injury can be said to be due solely to his own fault . . . where knowledge of the danger is not such as to render the accident solely the fault of the injured party, then it is not a bar to the action but only a ground for reducing the damages."

It was held in this case that the plaintiff did contribute to her injury and damages were reduced proportionately.

Development Plans

The Minister of Housing and Local Government has approved the development plan for Bristol, with modifications, which was submitted to him in July, 1954. The inquiry into the plan opened in September, 1952, and closed in October, 1952.

Coming Events

The Faculty of Building

September 22. Annual Dinner and Dance at the Piccadilly Hotel.

The Building Centre

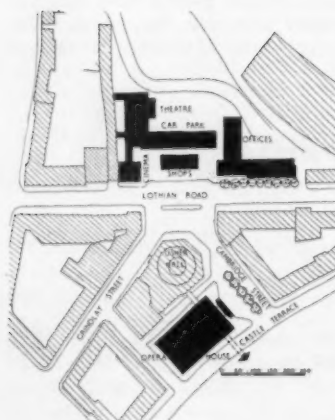
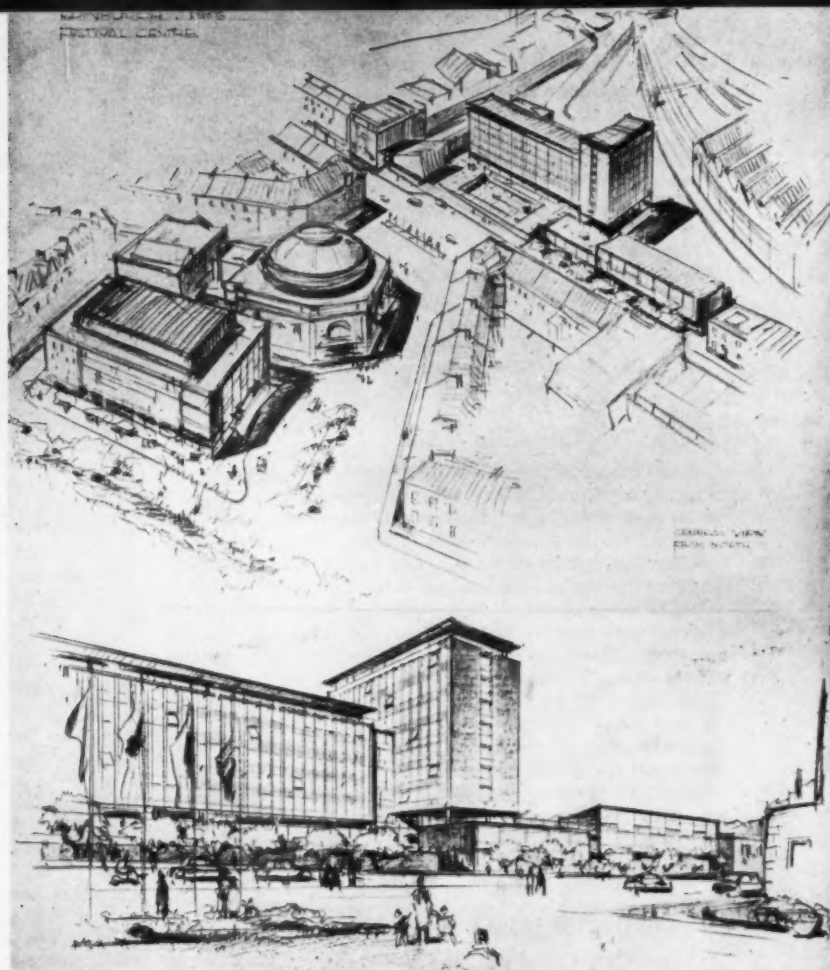
September 26 at 12.45. Lunchtime Film Show. Colt Ventilators—Fixing Methods and Water Tests. At 26 Store Street, W.1.

Institution of Production Engineers

September 27 to 29. Convention on Materials Handling, at Leamington Spa, Warwickshire.

Festival Opera House and Arts Precinct, Edinburgh

Top right, the Lothian road area showing the architects' scheme. The proposed opera house is next to Usher Hall in the centre. The view below shows offices next to the theatre and cinema sites.



Block plan of the site

GOADED by Sir Arthur Bliss's criticism of the existing facilities in their city for the annual Festival and eager to offer a practical solution that would bring Edinburgh in line with other world Art Centres, a group of architects (names not divulged) under the aegis of the Edinburgh Architectural Association have produced this scheme for development of the Usher Hall neighbourhood in Lothian Street.

We are informed that having fostered the ground work, the E.A.A. may not wish to take the scheme any further and if this is the case *The Scotsman* (who last week declared their support) will campaign for its acceptance.

It is expected that a model, based on the drawings reproduced on this page, will be exhibited at the Centenary celebrations of the E.A.A. next year.

The new buildings, shown black on the site plan, hinge on the proposed opera house. In contrast to the Royal Festival Hall its main function will be for opera and spectacles with orchestral concerts taking second place. However, new foyers, lounges and restaurant would create a new Festival Club thereby releasing the Assembly Rooms in George Street for large-audience concerts.

The foyers would be directly accessible from the semi-underground car park the Corporation proposes to construct alongside Kings' Stables Road, by a pedestrian underpass beneath Castle Terrace (see arrow).

On the other side of the Lothian Road the architects propose a reduction of much of the railway marshalling yards and their replacement by a two level shopping centre. This would have in addition, a theatre, a cinema, a restaurant, and a high block of rentable offices. They hope, too, to reduce traffic in Lothian Road to a minimum.

The Lord Provost, Sir John Banks (Chairman of the Edinburgh Festival Society) is quoted as stating categorically that wherever the money for such a project was raised, it would not come from Municipal rates.

House at Glastonbury

architect:

A. P. HEPWORTH

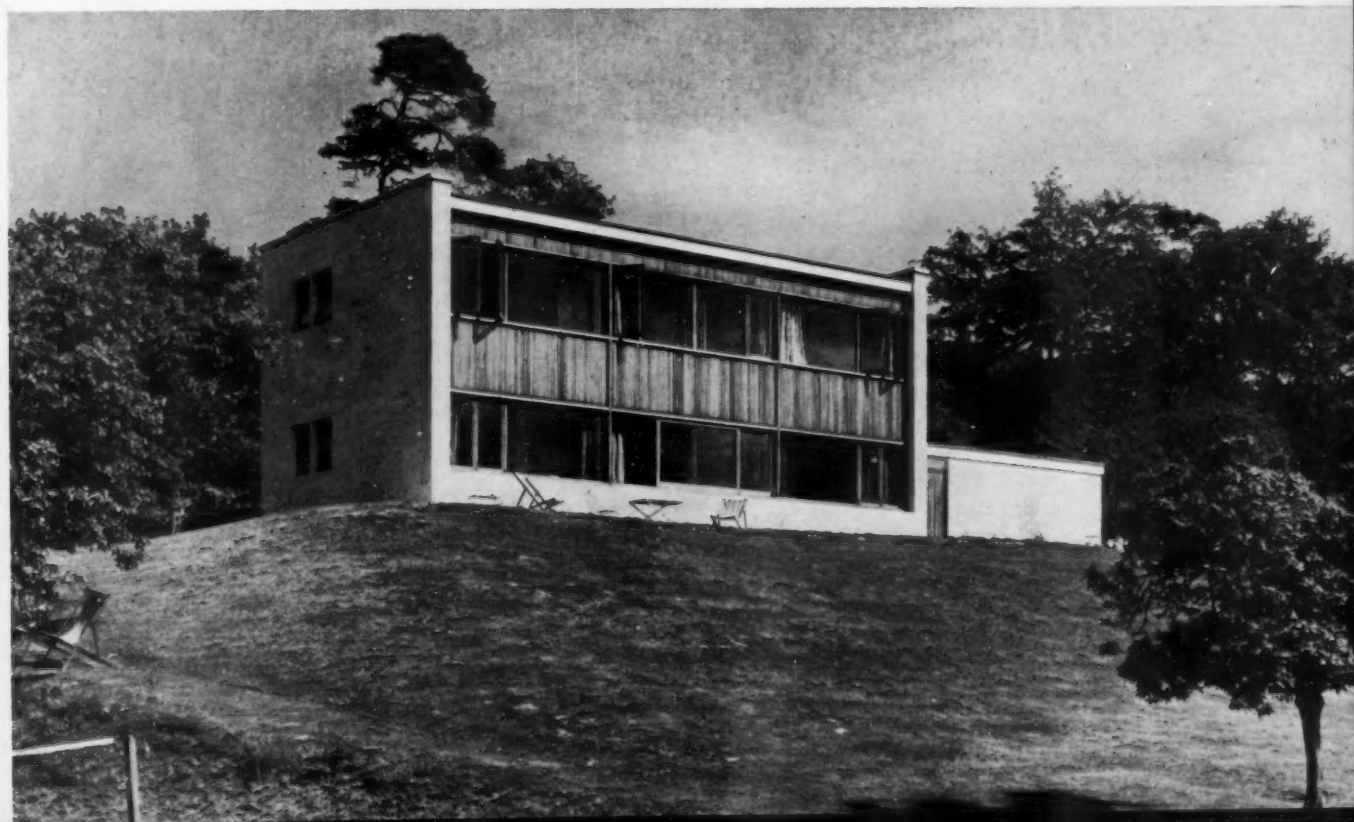


THE client desired a house which would be as labour saving and as economical in maintenance as possible. It was to be two storey and to have the accommodation as shown on the plans. Other stipulations were ceiling 8ft 6in high, plentiful cupboard storage, central heating by radiators to comfortable standards and no open fires. Heating and hot water were to be provided from a gas-fired boiler and heat insulation

was to be of first importance. As the local water supply is extremely hard all water was to be softened. The main rooms were to have hardwood floors and it was later decided to have all hardwood joinery except in the kitchen and bathrooms.

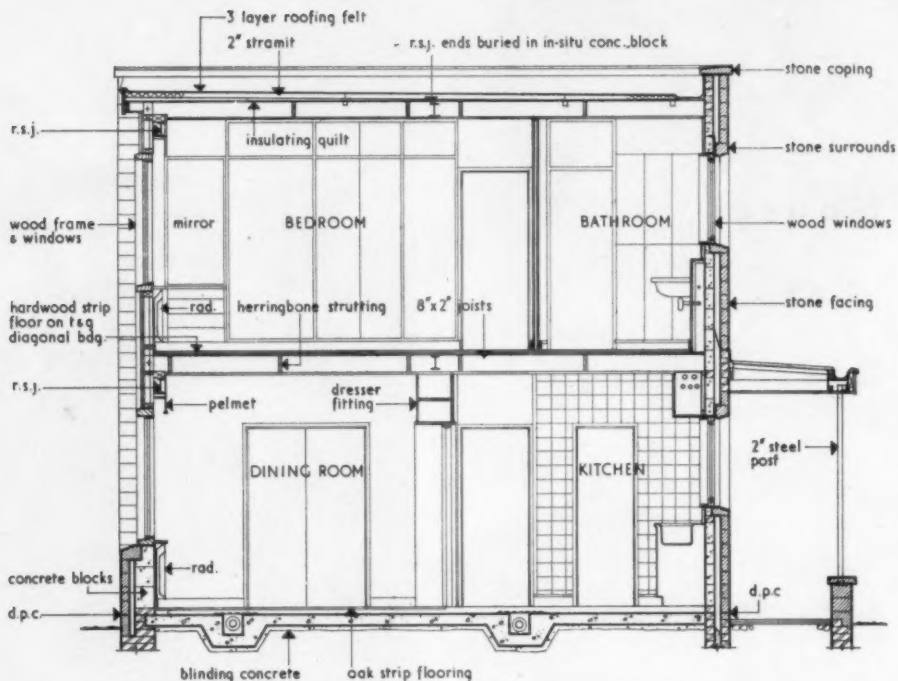
Although Glastonbury itself is largely built in a local red brick it is situated in a predominantly stone district. After inquiries into the availability of the local lias and

continued on page 386

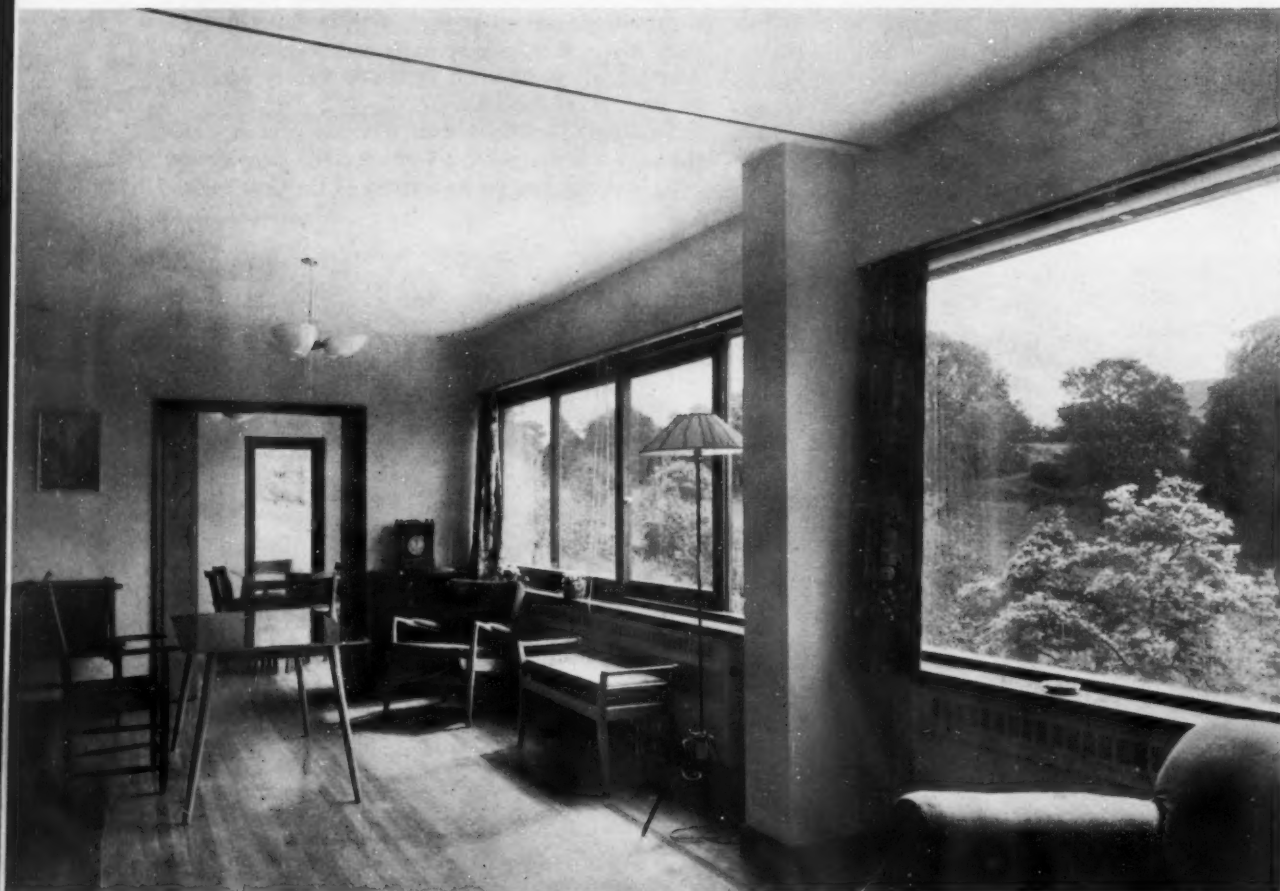


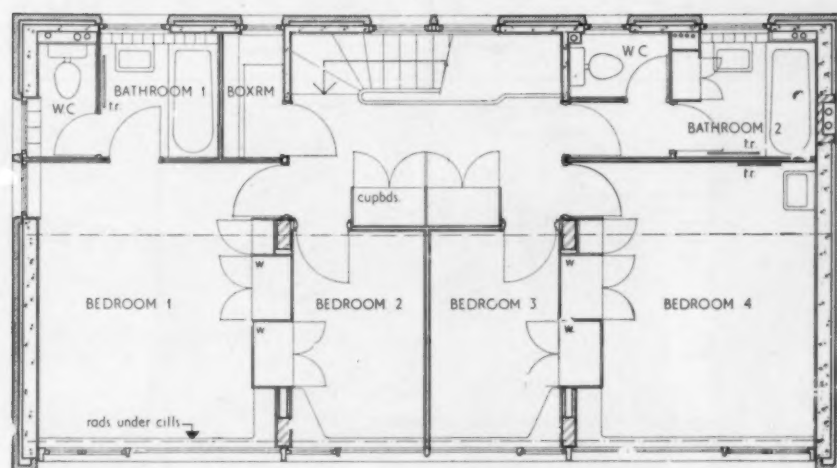
SECTION
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**House
at
Glastonbury**

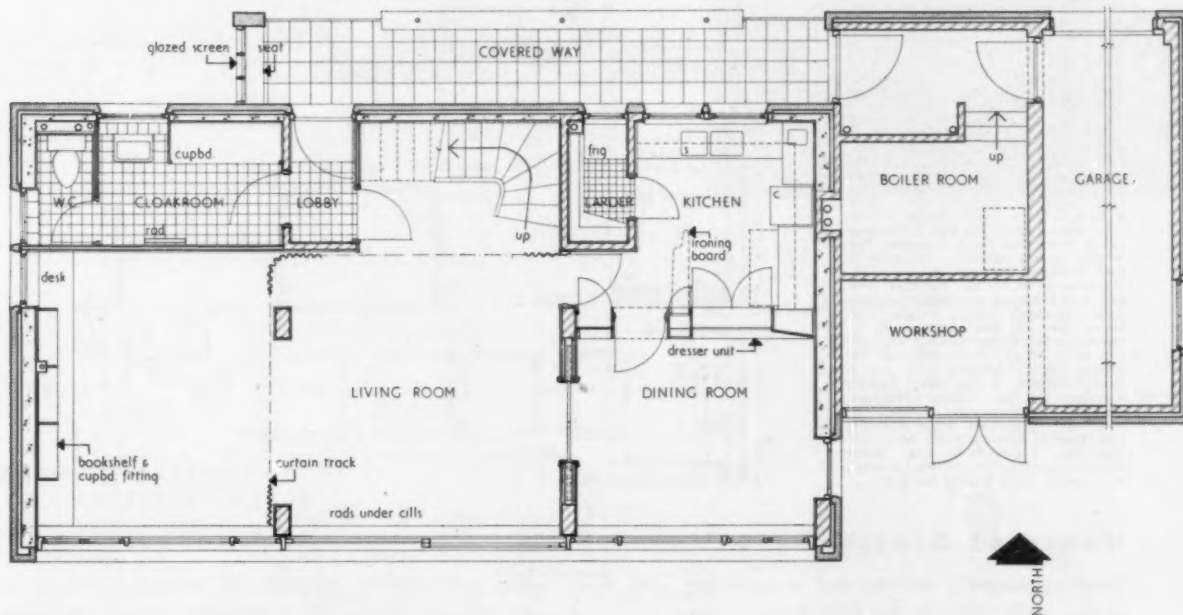


Living room towards dining room.



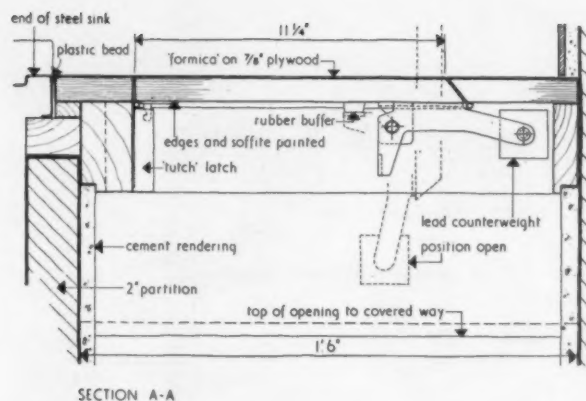


PLANS
SCALE: 1 IN = 8 FT.

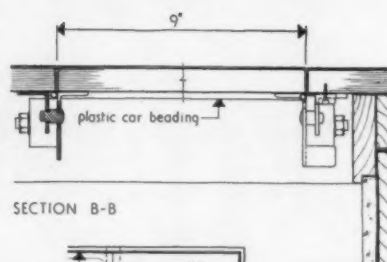


Bookshelf and cupboard fitting in living room and staircase with curtain division.





SECTION A-A



SECTION B-B



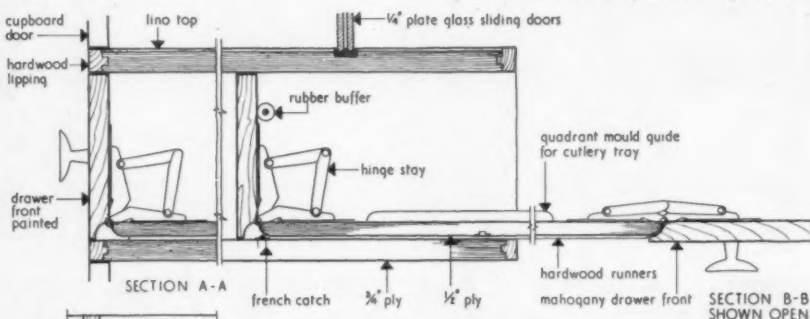
KEY PLAN

REFUSE BIN COMPARTMENT
SCALE 1/2 IN & 1/6th F.S.

General contractor: Clark, Son & Morland Ltd.,

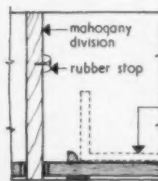
Subcontractors:

Adhesives: Aero Research Ltd. Baths: Jackson Elphic & Co. Ltd. Curtain Tracks: Thomas French & Sons Ltd. External Plywood: Venesta Ltd. Extract Fan: Ventaxia Ltd. Felt Roofing: William Briggs & Sons Ltd. Floor Tiles: Langley London Ltd. Foamed Slag Blocks: The Bath & Portland Stone Firms Ltd. Garage Door: Westland Engineers Ltd. Gas Boilers: Thomas De La Rue & Co. Ltd. General Plumbing: J. Barker, Plumber. Glass, double glazing units: Pilkington Bros. Ltd. Glazing & Mirrors: Bristol Glaziers Ltd. Hardwood Floors: Horseley Smith & Co. (Hayes) Ltd. Hardwoods: George Hooper & Co. Ltd., Wm. Mallinson & Sons Ltd. Heating, hot and cold water installation: Arthur Scull & Son Ltd. Internal Doors: Soro Laminated Wood Products Ltd. Ironmongery: A. J. Binns Ltd. Associated Brassfounders Birmingham Ltd., Wilkes Berger Engineering Co. Kitchen Sink: Wallis & Co. Lavatory Basins & W.C.s: Shanks & Co. Ltd., Adamsz Ltd. Sight Fittings: Merchant Adventurers Ltd., Troughton & Young Ltd. Locks & Door Furniture: Josiah Parkes & Sons Ltd. Natural Stone: The Bath & Portland Stone Firms Ltd. Oak Staircase: The Avalon Joinery Works. Partitions & Roof Decking: Scramit Boards Ltd. Plastering: G. W. Morris. Radiators: Ideal Boilers & Radiators Ltd. Rubber weather-strip: Howard Clayton-Wright Ltd. Sliding Door & Window Gear: P. C. Henderson Ltd., E. Hill Aldam & Co. Ltd., Charles E. Moody Ltd. Softwood and Building Boards: John Snow & Co. Taps & Fittings: Shanks & Co. Ltd., Barking Brassware Co. Ltd. Timber Connectors: Automatic Pressings Ltd. Veneered Plywood: Soro Laminated Wood Products Ltd. Venetian Blinds: J. Avery & Co. Ltd. Wall Tiles: Carter & Co. Ltd. Water Softener: Permutit Ltd. Window Fasteners & Furniture: Tomo Trading Co. Ltd.

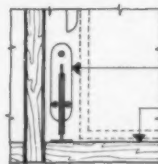


SECTION A-A

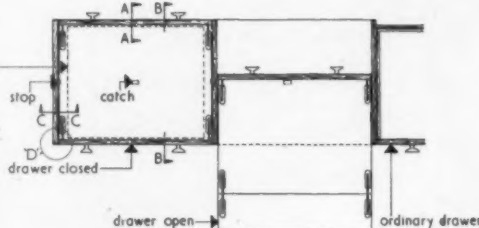
SECTION B-B SHOWN OPEN



SECTION C-C



PLAN AT 'D'



PLAN

TWO-WAY CUTLERY DRAWER
SCALE 1/2 IN & 1/6th F.S.

House at Glastonbury

Doubling stones it was decided to build the outer skin of the cavity walls in 4in Bath Stone.

The site on the steeply sloping side of a small combe, had formed part of a private estate and contained mature trees and flowering shrubs. It was decided to place the house on the only comparatively level area, a small platform artificially formed at some time past. In this position it is sheltered by wooded rising ground to the north and east and obtains splendid views across Sedgemoor to the Quantock Hills in the south-west and of Glastonbury Tor to the south-east.

At the design stage building licensing was in operation and a licence was obtained for a house of 1,500 square feet net floor area. In order to make the fullest use of this area internal loadbearing walls were reduced to four brick piers and the short 4½in buttresses to the

north wall carrying the stairwell trimmer. The floors and roof are carried on steel joists between the piers and the end walls, giving a span of less than ten feet for the timber joists. Uniform central heating and absence of flues enabled the stairs to be placed in the living room, which is thus continuous with the first-floor landing, without fear of draughts. The entrance hall could then be reduced to a mere draught lobby or internal porch and the living room made more spacious.

Considerations of aspect, view and heat-saving led to the concentration of windows in the south wall which was designed as a single composite frame. This was assembled on the ground and hoisted into position after the completion of the walls, first floor and roof. All the windows of the main rooms were fitted with double glass in Makore frames. Makore was chosen because it

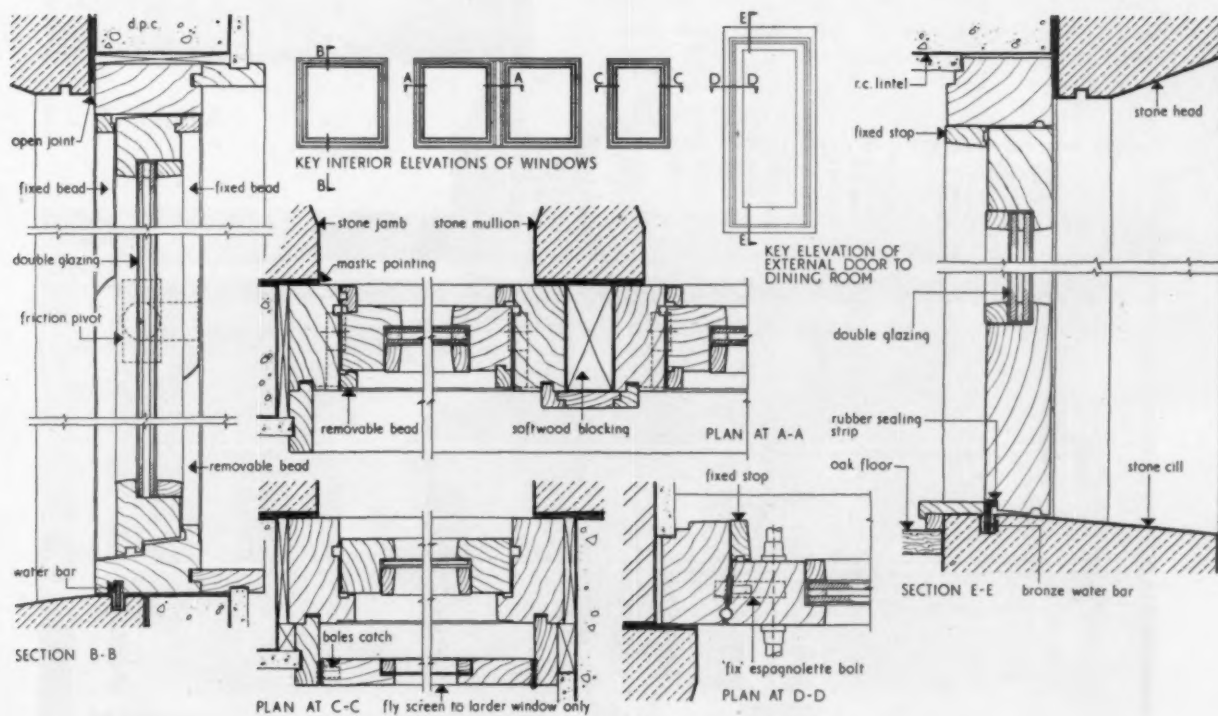
Kitchen. The trap door to the bin is below the towels on the right of the window. ▼



Window reflected in mirror, in bedroom one. ►



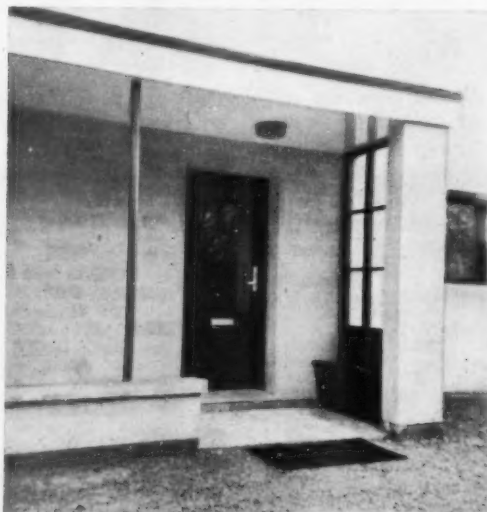
DOOR & WINDOW DETAILS SCALE: 1/6th F.S.



House at Glastonbury

is durable externally unpainted and was available from a local supplier. Its colour blends well with the Bath Stone externally and with the internal mahogany joinery. The use of double glazing proved most rewarding. During the prolonged frost of the winter of 1955-6, before the house was occupied and before the weather-stripping had been fixed to the windows and doors, with only one radiator operating on the ground floor at half pressure, the internal temperature never fell below 50 deg F.

The building work was carried out on a prime cost plus percentage profit basis by the factory maintenance department of the firm of which the client is a director. The principal sub-contracts were for the heating and plumbing installations, roofing, glazing, hardwood floors and plastering. The oak stairs were made by a small but old-established local joinery firm with experience of church work. As work on the house would have at all times to be subject to the prior claims of factory maintenance, an immediate start was made on the site works from preliminary $\frac{1}{4}$ in scale drawings which, when building work started, were supplemented stage by stage by detail drawings for the builders and schedules and quotations for the buying office. Building work took two years. The cost of the house was £10,412. The cost of a private approach road, main drain, main water, gas and electric services were shared with the owners of adjoining sites on the estate which were being developed simultaneously.



Covered way and seat, entrance front. Below, the garden elevation.





Landside view

Airside view

KUALA LUMPUR AIR TERMINAL

architect :

S. P. MERER

P.W.D. Kuala Lumpur



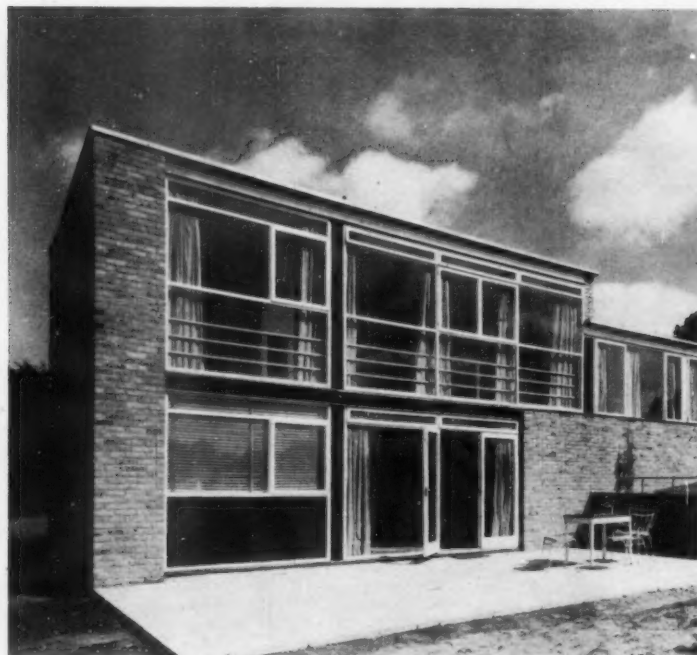
INCREASED air travel within the Federation of Malaya since the Emergency, has finally resulted in the hopelessly inadequate aerodrome buildings at Kuala Lumpur being demolished and replaced by the new terminal illustrated on this page. At the opening of August 1, the Minister of Transport, Ong Yoke Lin, said that the building and an aircraft parking apron cost 950,000 Malay dollars (£114,000) divided roughly half-and-half between the two.

Inside the terminal a separate mosquito-proof lounge has been provided for passengers in transit. Here they can relax between flights without having to pass through customs or health authorities. This lounge is on the right of the larger picture. Windows are mainly of the glass louvre type and vertical precast sun-shields also allow air to circulate through the building.

The aerodrome is I.C.A.O. classified and runways are long enough for Constellations and Britannias.

Domestic Windows

THIS article is concerned with domestic type timber and metal windows. The next article in this monthly series will cover industrial windows.



Some Aspects of Domestic Windows

by GEORGE FAIRWEATHER

F.R.I.B.A.

THE development of new materials and techniques for building appears to have made little or no change in the construction and design of domestic windows. This apparently conservative attitude towards the design of windows may be partly due to considerations of initial cost in present day house construction, but there can be little doubt that the good record of the old favourites will not be easily reached by alternative materials and arrangements.

Timber and steel, despite their dependence upon paint for preservation, stand up well to the rough handling they receive in windows and give long service. The old sliding sash with its simple and easily controlled movement serves the purposes of householders well and is easy to maintain in working order and repair. The hinged casement with its straightforward construction and arrangement gives relatively troublefree service, and is also easy to maintain in working order and repair.

Systems

Pivoted systems of sash control are not new, but they have never gained popularity in domestic buildings, partly because of the restricted service they provide and partly because of the practical difficulties of weather-proofing at the edges of opening sashes.

Arrangements by which sashes may be moved side-

ways into the reveals of openings or may be moved sideways while rotating on pivots or hinges to fold against the reveals have obvious advantages over other systems providing restricted travel, but they do not fulfil the wider range of domestic requirements so well as other systems do. For good service they rely on a standard of mechanical precision that is not commonly provided or maintained in the average house.

Whereas all parts of a domestic window need not necessarily be arranged to open, the arrangement selected for the control of opening sashes will generally dictate the design of the window. Domestic requirements of ventilation will vary with the seasons and the weather. To meet these varying requirements, householders may wish at different times to open windows at high level or low level, or to open them fully. Double hung sash windows will provide this variable function to a very useful extent in a single unit, even if the limit of full opening position is only half the area of the window. Hinged systems can also be arranged to meet these requirements in a composite grouping of sashes, but pivoted and sliding-folding arrangements are not readily amenable to such varying conditions of service.

The weight controlled movement of double hung sash windows will generally be sufficient to maintain the easy travel and steady position required in practice, and a mechanical device for securing the sashes is normally used for the closed position only.

Wood windows to E.J.M.A. sections in house in Surrey by architects Powell and Moya.

Hinged sashes must be controlled at intermediate positions of travel as well as the closed position, and stays providing frictional resistance to travel or points for intermediate fixing are normally used in conjunction with conveniently placed wedge type fasteners for this purpose.

An aspect of sash control that appears to have less attention in normal practice than it deserves arises from the fact that a partly open window may easily be opened more widely from outside to provide access to the building. In the absence of burglar proof control of sashes, householders must accept the risk of burglary during their absence from home or seal windows shut before leaving home. Special burglar proof arrangements can be fitted to most types of opening sash, but it is surprising that simplified systems have not been introduced for more general use in houses.

To be efficient in use, devices for the control and fixing of opening window sashes must be capable of rough handling while taking on obvious direction when in operation. They must also be capable of adjustment to accommodate possible future displacement or twisting of the sashes in their frames, and should be replaceable by simple methods.

The replacement of broken cords in double hung windows continues to be a difficult and damaging procedure and is not normally facilitated as it might be by the continuing practice of nailing and painting in the beadings that must be removed to gain access to the weights. New systems for the control of sashes in double hung windows are now available, and these promise well to overcome many of the limitations inherent in the use of counterweights.

The behaviour of domestic windows in use is influenced to an important extent by the way they respond to variable movements and deformation in the building itself. Precautions should always be taken when installing windows to ensure that some of this movement may be taken up in the window head without placing any stress on the frame, but these too often prove inadequate with the result that sashes must frequently be adjusted in their frames to maintain their working efficiency.

Double hung sash type windows can usually be adjusted to accommodate the effects of deformation in the walls of a building; as a rule, their installation provides a considerable margin of tolerance at the head, particularly when built into rebated reveals.

Hinged sashes in solid frames are generally more susceptible to the effects of deformation in the main walls, particularly when they are solidly bedded to square reveals. Tolerances can be embodied in the rebates of sash frames to take up some of the deformation, but in extreme cases the sashes may have to be trimmed at their edges and where these are complicated in section, the corrective work may be difficult.

The effort of deformation on pivoted and horizontal sliding sashes is very much more severe and correction will generally involve complicated operations.

The protection of materials against the effects of weather is probably the most exacting requirement of maintenance. Timber and steel windows require frequent painting if they are to be kept in good working order. This is an expensive procedure and represents a charge against the householder that might usefully be expended to pay for materials or protective processes not dependent upon paint for their preservation. Painting has the additional disadvantage of reducing working tolerances at the edges of sashes and may obstruct the hinges and fasteners to an extent that the working efficiency of the windows may be seriously impaired.

To reduce maintenance costs and at the same time maintain the necessary protective covering of paint in the most vulnerable places, householders might be well advised to repaint sills and the upper surfaces of horizontal projections every year and to leave other exposed surfaces for less frequent repainting.

Damp penetration is a common cause of damage to the building, and inconvenience to householders at window positions. The principles governing the design and installation of windows in relation to rainwater are well known, but the nuisance persists. The cause of damp leakage may arise from deficiencies in design or by neglect to observe all necessary requirements of design during the building operations. Alternatively, dampness may arise from misuse or neglect by householders to keep the materials in a sound state of repair.

Designers can however do a lot to reduce this menace by preserving a simplicity in their treatment of the vital details of windows, and by employing methods of installation that provide a large measure of tolerance for the practical difficulties of building.

Ventilation

In addition to the obvious functions of daylighting and vision, windows play an essential part in the ventilation of rooms. Air change and movement are indispensable to health and comfort, and the fortuitous leakages at the edges of opening sashes generally provide all the ventilation necessary in a room not otherwise equipped for continuous ventilation.

Until recently, Public Health Authorities required that window sash and other sources of fresh air should be supplemented by other means of permanent ventilation in rooms not having a chimney flue. A recent revision of the Building By-laws removes this condition, and appears to rely to a large extent on the inevitable air leakages at opening sashes to provide all of the ventilation necessary for good health.

There can be little doubt that doors, and the open joints of suspended timber floors contribute to the ventilation of rooms, but even this source is curtailed by the almost general use of solid ground floors in present day house construction.

In the meantime, designers and householders persist in their efforts to check air leakages at windows, and the wisdom of such a course is surely dependent upon

Some Aspects of Domestic Windows

the alternatives provided for the necessary permanent ventilation of rooms.

Insufficient air change and static air conditions will produce discomfort regardless of temperatures, and in the absence of any system for introducing air change and movement at desirable temperatures, the window will generally be as useful as a source of ventilation as any other arrangement.

When a room is heated by an open fire, combustion of the fuel and the removal of foul products will create a positive demand for air. Where the air intake is insufficient, fumes and smoke may fall back into the room, and is evidence of insufficient ventilation. This cause of draughts in a line between the positions of air intake and an open fire is a common nuisance in houses, but it will not be overcome by sealing the windows or other avenues of fresh air intake to the room. There is room in this connection for experiment in the design of open fires providing the air necessary for combustion independently of the air of the room.

Where space heating is by means not relying on air from the room for its operation, the heating source should as a rule be sited to warm the air as it comes into the room which is one of the reasons why heating radiators are so often placed under window sills.

Heat loss

Windows also affect heat comfort in rooms because of the excessive loss by transmittance through the glass, but unlike air leakage, the excessive wastage of heat through glass provides no compensating features.

Heat losses through single glazing in windows of a Living Room may be considerable in relation to the losses through other parts of the structure, and the 50 per cent reduction provided by double glazing offers an important saving in the cost of heating while adding appreciably to the overall comfort of the room.

Cold glass surfaces also promote condensation in certain humidities, and seriously obscure visibility and produce troublesome concentrations of water at sill level.

It is difficult to understand why greater use is not made of double glazing in this country, bearing in mind the present tendency to increase window areas in relation to room sizes and the very important heat losses that occur through a single glass thickness.

If the cost of double glazing were confined to the adaptation of sashes and the fixing of two glasses instead of one, there can be little doubt that it would be extensively used. Such a procedure is however insufficient to ensure that the airspace locked between the glasses would be at a suitable humidity, and effectively sealed against the unfavourable elements of the outside air. Specially fabricated double glazing units must therefore be used and the present cost of these may

preclude their general use in domestic buildings, but may well be repaid by the fuel saved in a Living Room to say nothing of the other benefits to comfort they provide.

A single thickness of glass provides relatively small resistance to the passage of sound. In normal conditions however, the weakness of a window in relation to sound is determined more by the direct air pathways of ventilation than by transmission through the glass thickness. Double glazing of sashes may reduce intrusion by noise to a slight degree, but to achieve an effective deterrent to transmission, double windows will generally be necessary and these must be constructed to provide an effective seal against air leakage.

Domestic requirements rarely call for special treatment to reduce noise transmission through windows, and when considering the use of double windows, designers should bear in mind that their requirements and effect are in direct conflict with many of the other functions of domestic windows.

Weather proof design

The principles governing the design of windows in relation to the weather are well known, but a brief summary of these is offered here in view of the risk that some of these are in danger of being overlooked in the development of systems specially designed to check air leakage.

The weather resistance of a double hung window is determined very largely by the movement and arrangement of the sashes in the frame. A relatively wind tight check is formed on the inner side of the window when the wind drives the sashes against the parting and the fixing beads. The tolerances between the upright edges of the sashes and the pulley stiles are a useful safeguard against capillary tendencies, and the beaded edges of the outside linings and the parting beads reduce the driving force of the wind on the outer side of the connections.

The connection between the upper sash and the head of the frame is rendered watertight by the protection it gets from the outside lining and from the soffit of the opening. The connection at the meeting rails is protected from the rain both by its position and by its direction, and the connection at the sill is generally the only detail requiring special treatment.

When the double hung window is closed, the lower edges of the bottom sash will rest on the sill. If a plane of contact is formed in this way along the outer side of the connection, capillary penetration may occur and rainwater may reach the inside of the window. To avoid this danger, the connection should be formed so that contact occurs along the inner edge of the connection only, while an ample clearance is maintained on the outer side of the window. The level of the plane of contact should be raised above the weathered surface of the sill so that it cannot be reached by rainwater forced into the joint by the wind.

To obtain a wind and water-tight casement window; the downward flow of rainwater must be maintained on the outer side of the window; and, capillary tendencies must be avoided in the arrangement of the connections; and, a wind check must be incorporated in a position that is inaccessible to rainwater.

The first of these conditions can be best achieved by the avoidance of unnecessary horizontal projections on the outer side of the window, and by a suitable arrangement of throatings and weatherings at all horizontal connections.

The second condition can be best achieved by providing an ample clearance between the edges of the sashes and the frame on the exposed side of the connections.

The third condition is generally fulfilled by arranging the connections so that the closing of the sashes will create a continuous line of contact in a position that is inaccessible to rainwater.

Where the sashes are hinged to open outwards, the wind check is formed on the inner side of the window by the closing of the sashes, and the clearance necessary to accommodate the movements of the timber is exposed on the outer side. In this way, capillary tendencies are eliminated, and the danger that rainwater may be driven through the open joints by the force of the wind is reduced.

When the sashes of a casement window are hinged to open inwards, special precautions must be taken to ensure that the plane of contact formed by the closing of the sashes will not seriously weaken the resistance of the connections to the penetration of rainwater.

If the sashes are enclosed by the frame in a single rebate, the plane of contact will be on the outer side of the window, and capillary penetration may occur in the jambs. Wind leakage in this plane of contact may extend the depth of penetration, and rainwater may reach the inside of the window.

To reduce the danger of rainwater penetration, the connection at the jambs should therefore be arranged so that the depth of the plane of contact is reduced by a deep groove that will divert the rainwater from the path of the wind and promote downward flow to the weathered top edge of the sill.

More reliable results may be obtained if the connections are formed so that the sashes will close against the frame in a position that is not directly accessible to rainwater. This may be achieved by rebating the edges of the sashes so that they close against the rebates and not against the outer surface of the sashes. If the frame is rebated twice so that the outer edges of the sashes are enclosed, care must be taken to ensure that the sashes do not come in contact with the frame in the outer rebate.

Treatment of the sill is governed by conditions similar to those applying in an external door, and a plate is generally fixed along the bottom rail of the sash to lead the rainwater away from the connection and to shed it over the weathered surface of the sill.



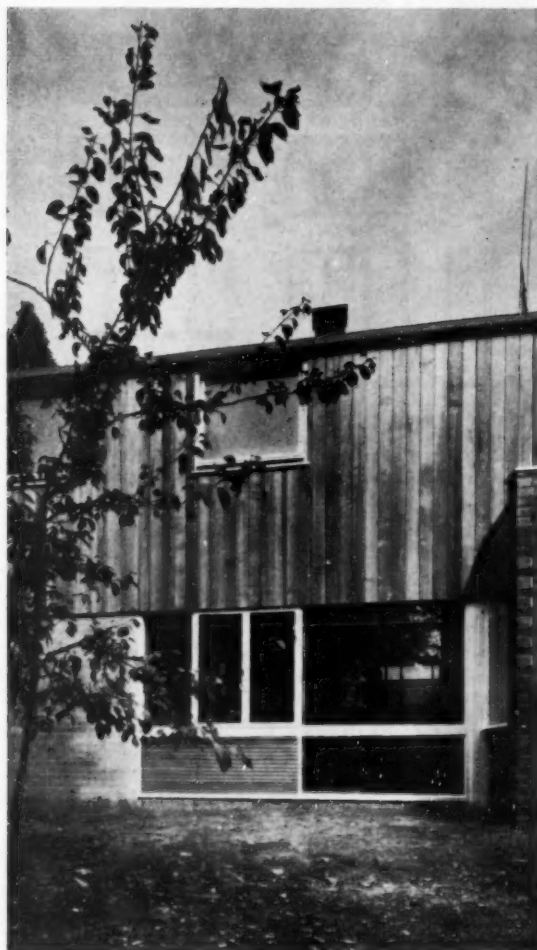
Above: sliding steel windows by Crittalls for St. Peter's Vicarage, Hampstead. Architects: Moiret and Wood. Below: sliding timber windows with "Insulight" glazing designed by Brian Peake, architect, for his own house at Otham, Kent.



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Timber windows in flats at Ham Farm estate completed in 1954 and designed by Eric Lyons, architect.



Timber windows in house at Hampton, Surrey, designed by Eric Lyons. General Contractor: H. Stokes & Co. Ltd.

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1. The provision of an inconspicuous night ventilating hopper at the top of the fixed pane.
2. Pivotted windows to be vertically, not horizontally hung, to enable the outside of the fixed pane to be cleaned from inside the building.
3. The development of a range of inward opening windows, and hoppers, for rooms abutting on to access and escape balconies.

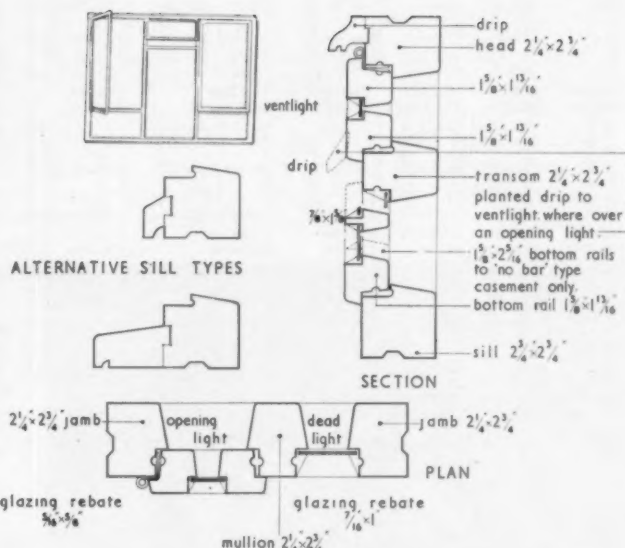
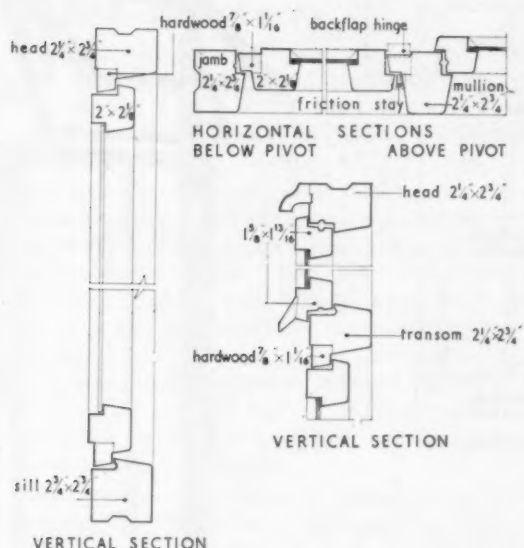
Timber windows must be made of well seasoned softwood, and they must be well detailed and well installed if they are to stay weather-fast under all climatic conditions at various times of the year. They usually leave the manufacture primed for painting. This in itself tends to limit moisture movement, and of course, soft wood windows need a certain amount of maintenance.

The Modolite Range

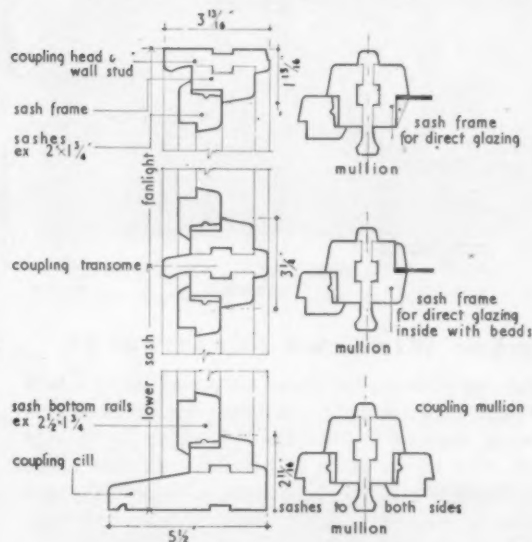
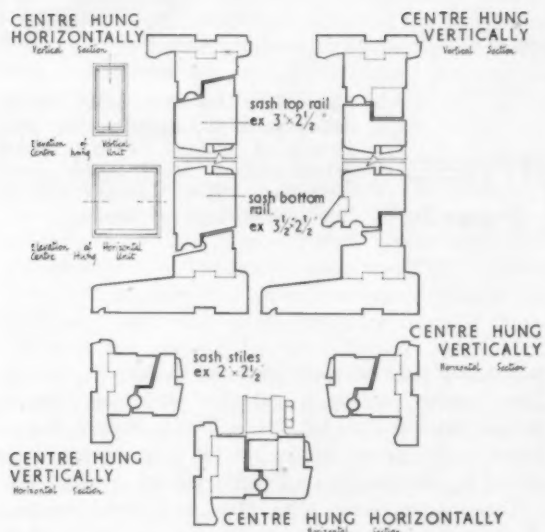
The Modolite range of standard windows, elaborated by Messrs. H. C. Janes Ltd., differ from the E.J.M.A. standard range in several points. They are developed in a horizontal unit of 2ft less $\frac{3}{4}$ in for every repetition of that unit, and they are developed on a vertical unit which is a multiple of 3in so that transomes and glazing bars occur at various multiples of 3in, and finally, as in multiple metal window units, all coupling takes place on a specially designed tongued coupling transome or mullion, separate from the sash frame, whereas in the E.J.M.A. range, a mullion or transome can itself be the sash frame.

Special windows can be made up, using either manufacturers' sections or specially designed sections, and hardwood may be employed as well as softwood. Hardwoods of the right properties enable much lighter sections to be used (for instance, the $\frac{1}{2}$ in Georgian glazing bar) and need not be painted; in the case of Teak, the wood contains an oil which makes it water resistant and it weathers naturally to a silvery grey colour.

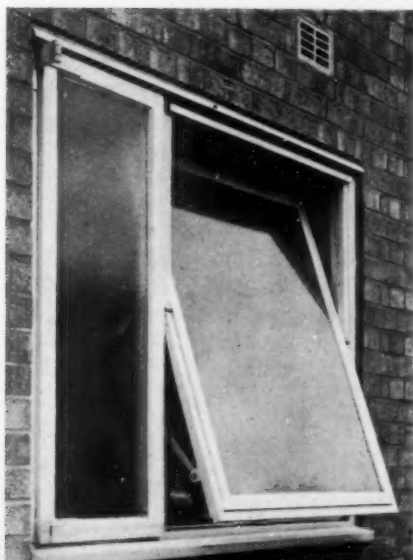
Wood windows may incorporate double sashes or



Typical details of the EJMA standard casement windows.

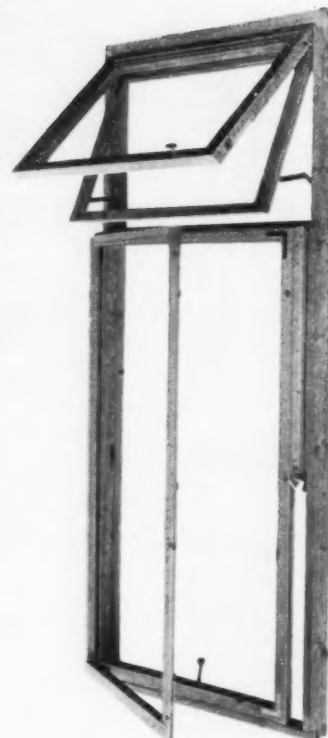
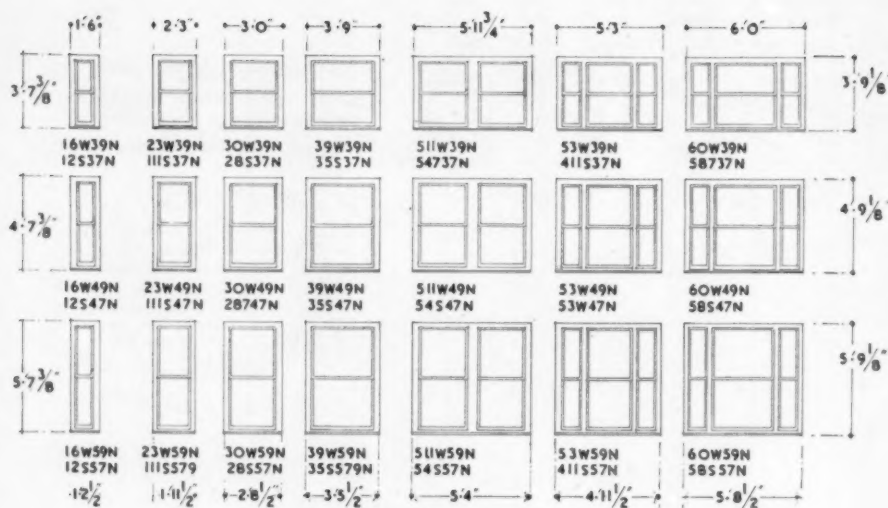


An example from the "Modolite" range is shown below and typical Modolite sections are detailed above.

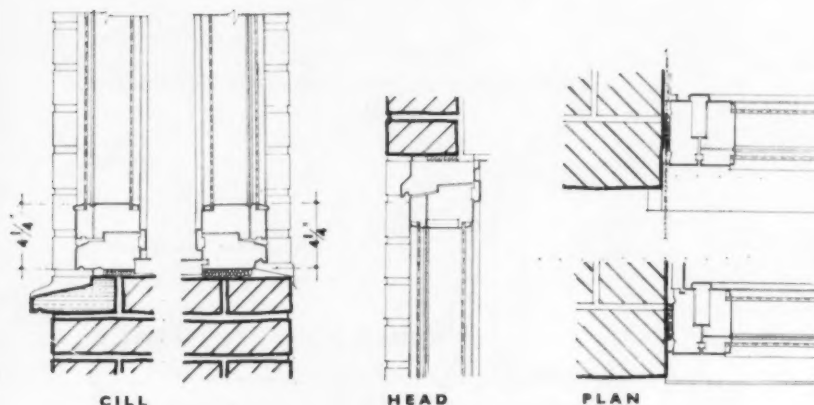


Modified L.C.C. type EJMA windows in Council flats at Boundary Road. Designed by architects: Edward Armstrong and Frederick MacManus.





Above left: Standard EJMA sliding sashes spring or weight balance. Left: Details of typical "Velux" double glazed windows. Above: Double glazed pivot hung "Tomo" window showing leaves open for cleaning.



Timber Windows (Continued)

special one piece double glazed units may be used such as Pilkington's Insulight. A broad horizontal section of wood windows enables the two sashes to be kept apart, even to the point of installing venetian blinds between them and has been applied to several types of window now made in this country, following Scandinavian precedents and patents.

Among special proprietary systems of glazing recently

introduced may be mentioned the "Allday" window. This window, which is valuable where an opening entirely unobstructed by glazing bars is desired, has no frame in the proper sense, but the glass simply slides to and fro horizontally on a carriage fitted as a ball race.

There is no reason why wood and metal windows should not be combined, wood being used for the sub-frame.

STANDARD BAY WINDOWS

Maximum and minimum widths supplied by manufacturers below.

MANUFACTURER	90°		60°	45°	Segmental	
	Min.	Max.	Min.	Max.	Min.	Max.
ALLAN BROS. LTD.	5' 9 1/8"	7' 9 1/8"	5' 11 1/8"	9' 11 1/8"	6' 10 1/8"	8' 5"
AUSTINS OF EAST HAM LTD.	1' 9 1/8"	7' 6 1/8"	3' 9 1/8"	9' 6 1/8"	7' 2"	9' 3 1/8"
AUSTINS OF ILFORD LTD.	6'	8'	6'	8'	8'	9'
BOULTON & PAUL LTD.	5' 8 1/8"	7' 7 1/8"	7'	8 1/8"	4' 9 1/8"	8' 7 1/8"
EVANS BELLHOUSE LTD.	6' 1 1/8"	8' 0 1/8"	6' 7 1/8"	10' 5 1/8"	8' 4 1/8"	9' 3 1/8"
JANES LTD.	5' 10 1/8"	7' 9 1/8"	5' 9 1/8"	9' 8 1/8"	2' 10"	10' 6"
JENNINGS OF BRISTOL LTD.	5' 6 1/8"	7' 4"	7'	6 1/8"	8'	9' 3 1/8"
MIDLAND WOODWORKING CO. LTD.	5' 6 1/8"	8' 2"			2' 9"	9'
KINGSTON (ARCHITECTURAL CRAFTSMEN) LTD.	1' 9 1/8"	7' 6 1/8"	3' 9 1/8"	9' 6 1/8"	4' 8 1/8"	10' 5 1/8"
PRICE BROS. & CO. (PENARTH) LTD.	1' 11 1/8"	7' 11 1/8"	3' 10"	9' 5 1/8"	2' 10"	10' 4 1/8"
RIPPERS LTD.	1' 9 1/8"	7' 6 1/8"	3' 9 1/8"	9' 6 1/8"	4' 8 1/8"	10' 5 1/8"
ROTHERVALE MANUFACTURING CO. LTD.	1' 9 1/8"	7' 6 1/8"	3' 9 1/8"	9' 6 1/8"	4' 8 1/8"	10' 5 1/8"
JOHN SADD & SONS LTD.	2' 3 1/8"	8' 0 1/8"	3' 9 1/8"	9' 6 1/8"	4' 8 1/8"	10' 5 1/8"
E. O. SHANKS & SONS LTD.	4' 10 1/8"	6' 6"	6'	7 1/8"	7' 5 1/8"	8' 11 1/8"
SHARPE BROS. & KNIGHT LTD.	5' 3 1/8"	7' 9 1/8"	5'	4 1/8"	2' 7 1/8"	8' 0 1/8"
H. F. TOTTLE & SONS LTD.	1' 9 1/8"	7' 6 1/8"	3' 9 1/8"	9' 6 1/8"	4' 8 1/8"	10' 5 1/8"

Metal Windows

METAL windows are produced in this country either as specials in steel, aluminium and bronze or in standard form to B.S.S. 990 (1945) in mild steel which is usually galvanized. Both aluminium alloy and bronze windows will weather naturally, since the initial corrosion of the surface of these materials forms a protective coat which prevents the underlying metal from being further attacked. Stainless steel windows will not weather at all. Mild steel cannot be used directly for windows, since it rusts. It is usual, therefore, to protect the surfaces of mild steel windows by galvanizing them with zinc in an electroplating bath, or the zinc can be sprayed in molten form, on to the surface of the prepared steel, by drawing zinc wire or dust into a reducing flame. They are then given a coat of primer and stoved.

Steel sections for windows are produced by rolling; aluminium and bronze sections generally by extrusion. Because the cost of setting up rollers for special steel sections is considerable, it is more usual for specially designed window sections to be executed in aluminium or bronze. Steel windows are at present the most widely used, but aluminium windows are becoming commoner, and bronze windows, though costly, are probably the most durable, since they require almost no upkeep beyond an occasional oiling of the hinges.

Wooden sub-frames may be employed in conjunction with metal windows. It is usual to use hard-woods which are naturally water-repellent. Teak contains an acid which corrodes iron and steel, producing an ink-like stain and for this reason, when using this material, care must be taken that no exposed steel comes in contact with teak, and screws must be made of brass, which is not affected by it. Bronze windows are unaffected by contact with teak sub-frames in any case.

As shown in the diagrams on p. 400 metal windows may be put together in a great variety of ways, to cover almost any area; and they can be built up from simple into complex units, being coupled together with standard mullion, transome and cill elements. They can be made and bought as units for double-glazing, or fitted with a proprietary system of double-glazing, such as Messrs. Pilkington's "Insulight". As it is difficult with normal metal windows to get sufficient distance between the two panes without greatly increasing the depth of section, or installing two separate windows in the same opening, this method greatly simplifies double-glazing, for the two sheets of glass are sealed along the edges, and the space between them is partially evacuated; their inner surfaces never require cleaning, and the insulation value is as high, as with two separate panes further apart.

Ranges of sliding and folding windows are often used to enable a clear opening to be obtained of considerable width. Wide openings can also be filled with ranges of sliding and fixed panes, as was common on the Continent in the 'twenties and 'thirties, it being usual to

mount the fixed panes outside the sliding ones. Apart from the greater accessibility of hinged and pivoted casements to cleaning from within the building, sliding windows have the advantage that they project neither in nor out when opened; and they show no tendency to blow open or shut in a wind. But they may have more complex gear and weather-stripping, than is necessary



A Crittall standard casement window in a house in Hertfordshire. Contractor: E. C. & J. A. Jarvis Ltd.

Crittall standard casement and "picture" window in a private house in Sussex.



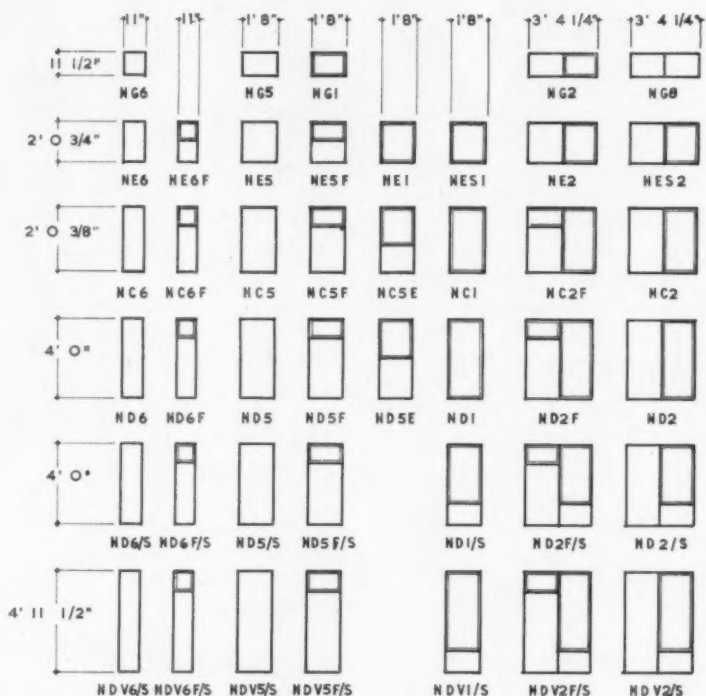
Metal Windows (cont)

with normal hinged and pivoted casements and hoppers, if they are to work smoothly and stay weather-fast. Metal, usually aluminium, vertically sliding sash windows have also become common, first in the United States and latterly in Great Britain, although they have not been used extensively yet in domestic architecture.

Metal windows can be made to the architect's design and specification, just as can wood ones. But if the design does not start from the available standard sections, or the manufacturer's own sections, the windows are likely to prove very costly unless the sections are extruded, as with aluminium alloy and bronze. Aluminium, when near its melting point can be extruded in almost any shape one pleases.

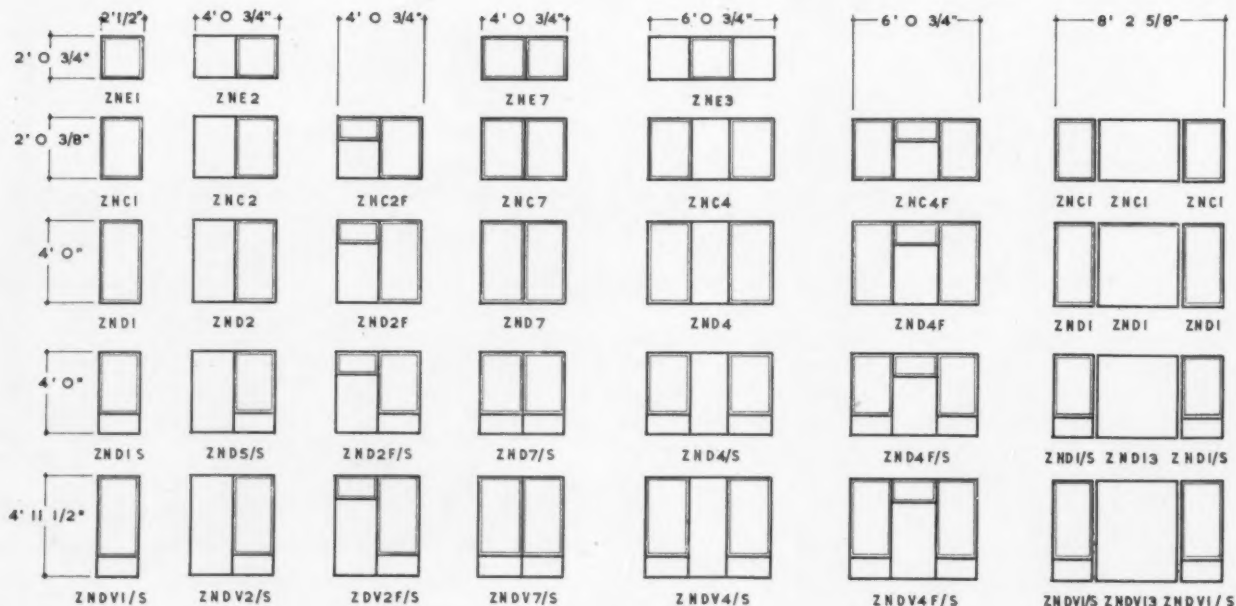
Glass can be mounted direct in pre-cast concrete frames, on the lines of pavement lights set vertically. Lenscrete is such a system, and is analogous to the mounting for glass-bricks, except that the concrete ribs show, and act as mullions and transomes. It is also possible, where windows of clear glass are desired with the minimum of obstruction from glazing bars, to arrange sliding windows with no mullions at all; the "Allday" sliding window already mentioned, is of this

type. Its panes are mounted in a narrow channel fitted with ball-bearing runners, along the bottom edge only. The runners travel on a rail. The top edges of the panes run in a groove in the wooden window head, furnished with bronze spring weather-stripping. Since both a small amount of metal, and wood are necessary for the construction of this window, it does not belong strictly in one or other category. In this sliding window, the fixed and sliding panes have to overlap slightly, as there is neither mullion nor weather stripping up the vertical junction between the two panes. Plastic edge stripping can be attached along the vertical edge, to act as a draught excluder when the window is closed.



Above right: table of standard steel windows to B.S.S. 990. Below: typical standard "Z" range windows, designed to meet the needs of architects for windows with more generous glazing area. Their name comes from the shape of the heavier section.

Diagrams redrawn from those of John Thompson, Beacon Windows Ltd.

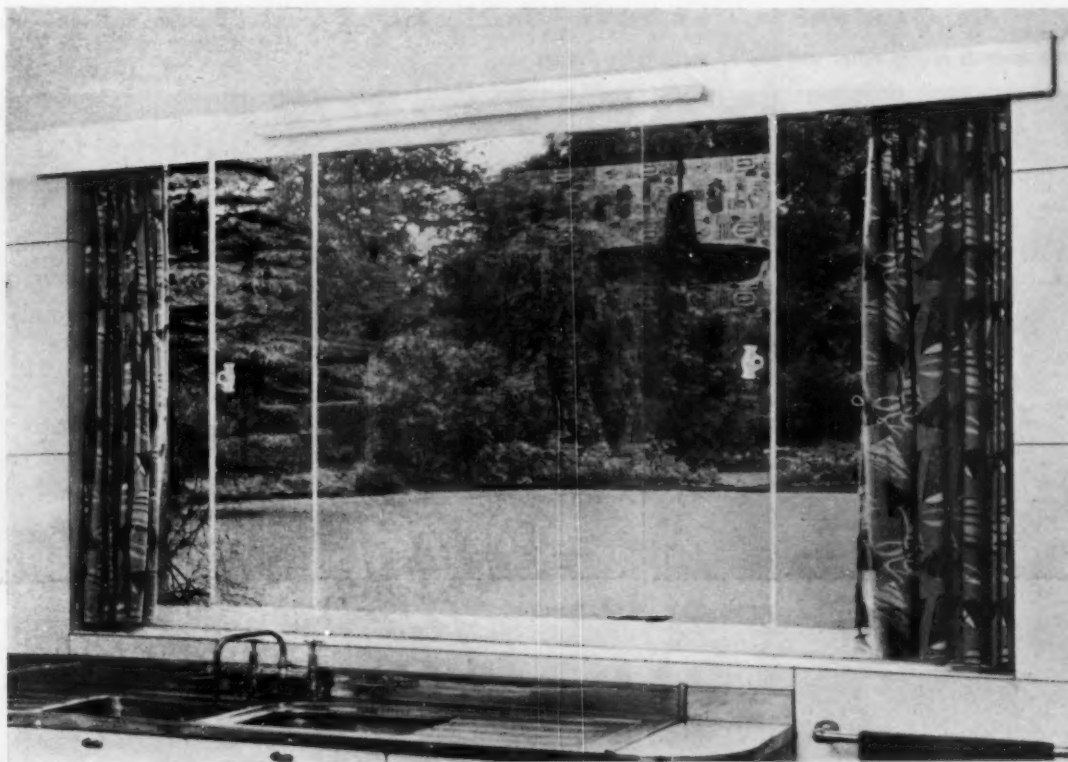


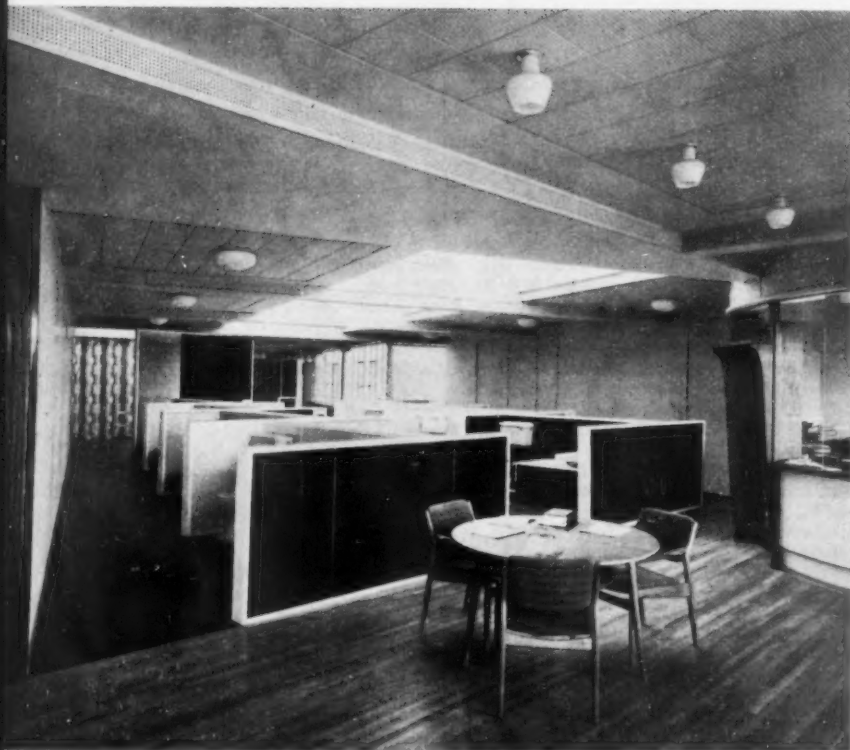
METAL WINDOWS MANUFACTURERS

KEY : **A**—make standard windows to B.S.S.900 (1945). **B**—make windows to any dimensions as specials but using own standard sections. **C**—make windows to architect's own detail. **D**—make windows in steel. **E**—make windows in aluminium. **F**—make windows in bronze. **C**—make as standard one or more of the following specials:—double glaze, double sash, sliding sash, pivot type, special windows for tropics, sliding windows.

BCDEFG	P. G. ALLDAY & CO. LTD., Northwood Street, Birmingham 3.
BDEFG	A. BEANES & CO. LTD., Bridge Wharf, Bishops Bridge Road, London, W.2. Paddington 4051.
BCDG	BECKETT LAYCOCK & WATKINSON LTD., Acton Lane, London, N.W.10. Elgar 5403.
ABCD	BRUNSWICK METAL CASEMENT ENGINEERING CO. LTD., Glenfome Road, Bristol. Bristol 51491/2.
ABCDEG	CLEMENT BROS., Clembro Works, Wey Hill, Haslemere, Surrey.
ABCDG	CRITTALL MANUFACTURING CO. LTD., Manor Works, Braintree, Essex.
ABCDEFG	COLCHESTER STEEL CONSTRUCTIONAL CO. LTD., 168 Magdalen Street, Colchester. Colchester 2441.
BCD	DOODSON & BAIN LTD., Wilson Street Works, Manchester 11. East 1456.
BCDEG	FURNISS & CO., Queens Mill Road, Little Royd, Huddersfield. 4567.
CD	GARDINER, SONS & CO. LTD., Midland Ironworks, St. Philip's, Bristol 2. Bristol 20011.
BCDFG	JOHN GIBBS LTD., King's Heath, Birmingham 14.
ACDF	GUILDFORD GLASS & METAL WORKS LTD., Portsmouth Road, Guildford, Surrey. Guildford 2922.
ABCDEG	HAYWARDS LTD., Union Street, Borough, S.E.1. Waterloo 6035.
ABCDEFG	HILLS (WEST BROMWICH) LTD., Albion Road, West Bromwich. 1811.
ABD	HENRY HOPE & SONS LTD., Smethwick, Birmingham. Smethwick 0891.
ABCDG	HOSKINS & SEWELL LTD., Midland Works, Bordesley, Birmingham 12. Victoria 2340.
ABCDEF	IDEAL CASEMENTS (READING) LTD., Shepherd's House Lane, Earley, Reading, BERKS. Reading 62676.
ABCDEFG	W. H. KALEYARDS LTD., Victoria Road, Chester. Chester 21078.
ABCDEFG	LUXFER LTD., Waxlow Road, Harlesden, N.W.10. Elgar 7292.
ABCDEFG	MACLEAN & CO. (METAL WINDOWS) LTD., Cadzow Works, Hamilton, Lanarkshire. Hamilton 1410.
ABCDEFG	MELLOWS & CO. LTD., Corporation Street, Sheffield 3. 22101.
ABCDG	MIDDLESBROUGH CASEMENTS LTD., North Ormesby, Middlesbrough. 2707.
BCDFG	MORRIS SINGER CO. LTD., Ferry Lane Works, Forest Road, Walthamstow, E.17. Larkswood 1055.
ABCDG	RUSTPROOF METAL WINDOW CO. LTD., Deva Works, Saltney, Chester. Chester 23434.
ABCDEF	STANDARD METAL WINDOW CO., Houghton Street, West Bromwich. 0405.
ABCDEG	JOHN THOMPSON BEACON WINDOWS LTD., Beacon Works, Wolverhampton. Bilston 41121.
ABCEFG	WAINWRIGHT & WARING LTD., 14 Mortlake High Street, London S.W.1. Prospect 4451.
CDG	C. E. WELSTEAD LTD., St. Andrew's Works, Tanfield Road, Croydon. Croydon 3484/5.
CDG	W. B. CASEMENT & ENGINEERING CO. LTD., Smith Road, Wednesbury, Staffs. Wednesbury 0701.
ABCDEF	JOHN WILLIAMS & SONS (CARDIFF) LTD., East Moors Road, Cardiff. 33622.
ABCDEF	WILLIAMS & WATSON LTD., 77-79 Victoria Street, Liverpool. Bootle 2096.
ABCDEFG	WILLIAMS & WILLIAMS LTD., Reliance Works, Chester.
ABCD	GEORGE WRAGGE LTD., 295 Oldfield Road, Salford 5. Deansgate 4018.

The "Allday" sliding window, which has a transparent plastic weather-stripping at the edges of the glass, is here seen used in a kitchen.

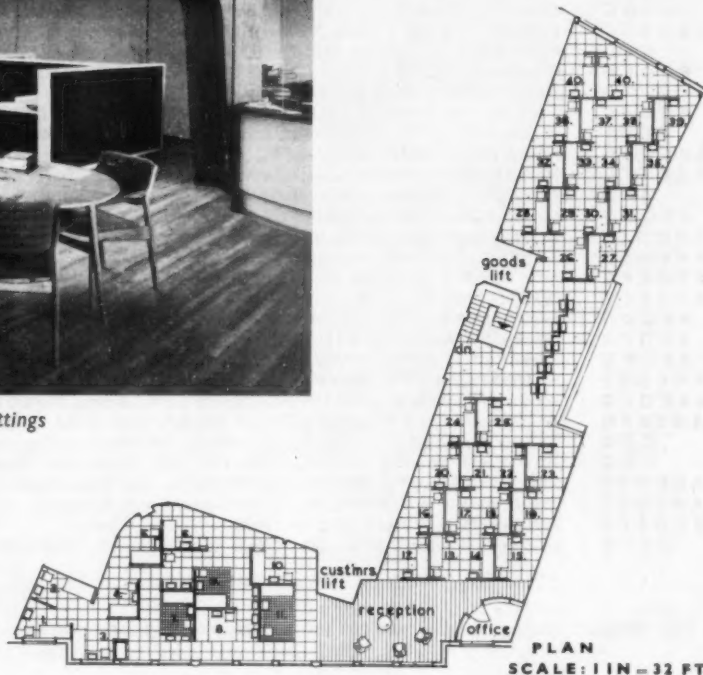




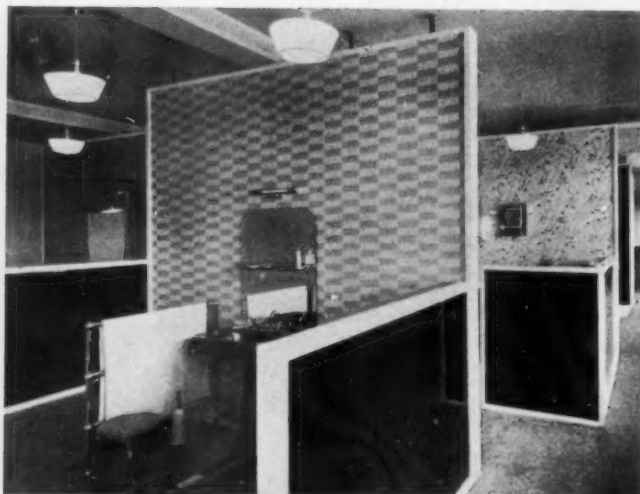
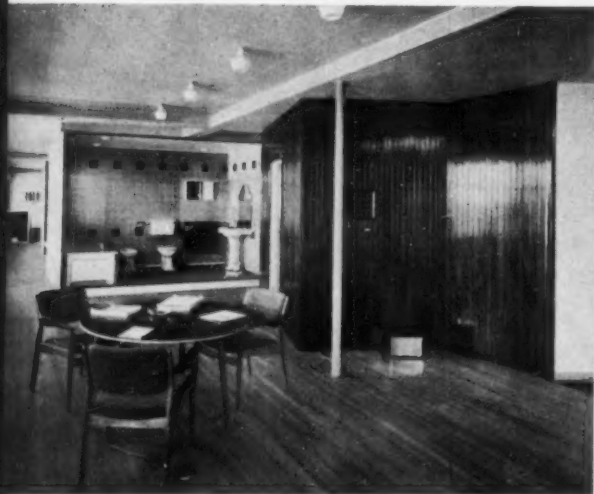
Reception area looking towards standard fittings

architect :

C. ROY BEECROFT



Looking towards luxury suites and one of the display fittings



THE showroom is in the Metal Agencies Company Ltd.'s existing building which is being remodelled to provide a more representative display of the Company's products. The bathroom showroom occupies the top floor, which has been entirely redesigned. The client's wanted to show a minimum of forty bath suites, together with separate basins, w.c.s and other sundry fittings on the one floor. A certain number had to be equipped as luxury bathrooms complete with built-in cabinets, fittings, and bidets. Such suites are furnished complete with curtains, towels, mats, toothbrushes and toilet requisites.

Planning

The irregular shape of the building divides the showroom into two sections—the front triangular area, and the long rear leg—with main access by passenger lift at the junction of the two.

Luxury suites were planned in the front area which has the best natural light. Display of model bathrooms around the perimeter wall (as an idea) was discarded as it was felt that it is too easy for the potential customer to view the whole display at a glance without examining the individual exhibits. So the layout was planned as a "maze to encourage the visitor to find out what's round the corner". Similarly an attempt has been made to hold the visitor's interest by the varying finishes which include lino, cork, rubber, and vinyl tiles for the floors, and vitrolite, enamelled hardboard, plastic tiles, plain and screen-printed clay tiles, and wallpapers, for the walls.

Generally, the partitions running at right angles to the window wall are ceiling height and solid, but the transverse screens are 7ft high and glazed. The bathroom facing the reception area is the showpiece and

has a raised floor and false ceiling, the opening being framed with a polished Utile surround.

To separate the two sections of the showroom a reception area was planned around the passenger lift and a polished hardwood floor and wall panelling (together with upholstered chairs and tables in oak and teak) help to counteract the coldness of the sanitary materials elsewhere.

The remainder of the showroom contains standard bathrooms and is planned on a sawtooth which permits the greatest number of exhibits but gives a sense of enclosure to each suite. To avoid the monotony of too long a vista a secondary break was provided at the staircase by the inclusion of higher stands carrying individual basins, high level w.c.s, and geysers. A heavy solid brick balustrade to the stair well was incorporated into the design by capping it with an eye level showcase for bathroom fittings.

Construction

As the work had to be carried out on the one floor only with no extra storage space, all wet trades were eliminated as far as practical, and the main construction material is timber. Similarly, Carlite plaster was used (saved having sand on the site) and all the tile work was carried out in Richafix direct to Bartrev chipboard.

The generous use of enamelled hardboard was included in the client's instructions, and in all cases it was stuck to a Bartrev chipboard backing.

Due to the many varying thicknesses of the materials to be dealt with, a simple stud partition construction was used with a $\frac{1}{2}$ in lining at each end which could be varied in width, and a 2in by $\frac{1}{2}$ in cover mould which also ran round as a capping and a skirting, giving a panel treatment to each facing material.

continued overleaf

Typical bathrooms



Washbasin display



General Contractor:
Stone & Co. (Bristol) Ltd
Subcontractors

Blinds :

(Venetian) John Wood & Sons (Bristol) Ltd.

Acoustic Tiles :

Metal Agencies Co. Ltd.

Curtains :

Jones & Co. Ltd.

Flooring :

(Oak) Horsley Smith & Co. (London) Ltd.
Korkoid Decorative Floors Ltd.

Furniture :

Russell Furnishings Ltd.

Glazing :

S. H. Parker & Son Ltd.

Glazed Tiling :

Carter & Co. (London) Ltd.

Lettering :

Ward & Co.

Light Fittings :

Metal Agencies Co. Ltd.
Merchant Adventurers Ltd.
Troughton & Young (Lighting) Ltd.

Paints :

Cotterell Bros. Ltd.

Wallboard :

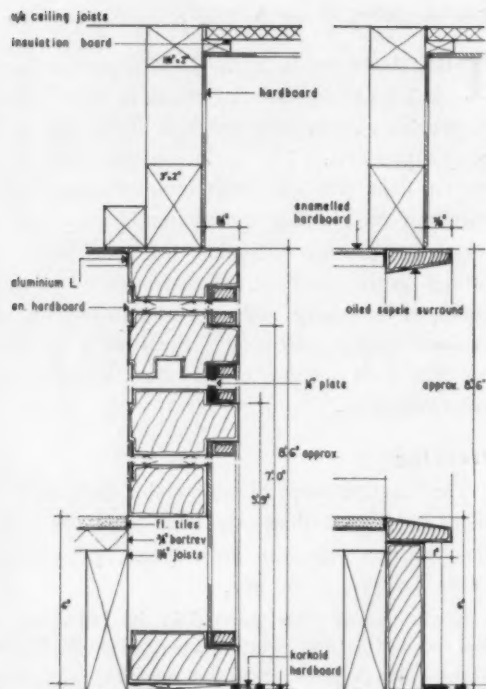
Metal Agencies Co. Ltd.

Wallpapers :

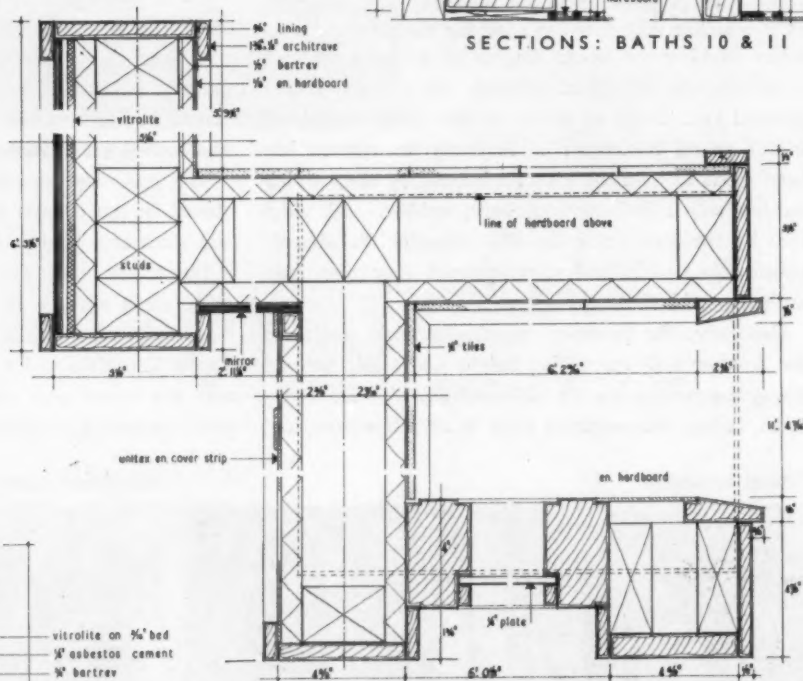
Cotterell Bros. Ltd.

Wall Tiling :

(Plastic) Marley Tile Co. Ltd.

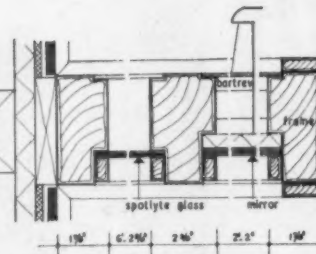
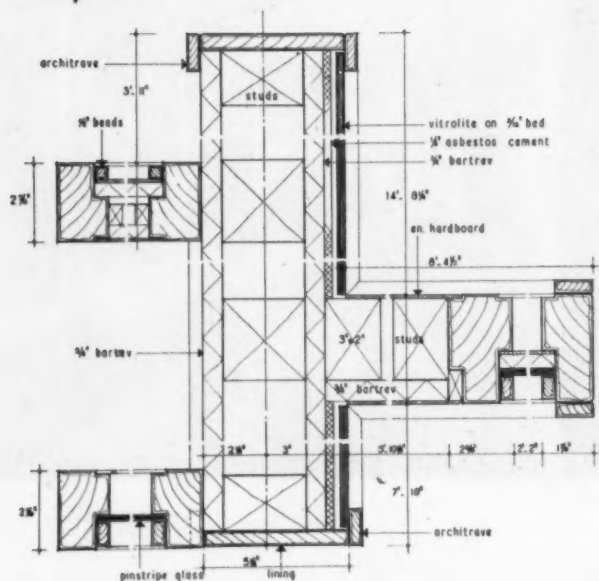


SECTIONS: BATHS 10 & 11



PLANS: BATHROOMS 10 & 11

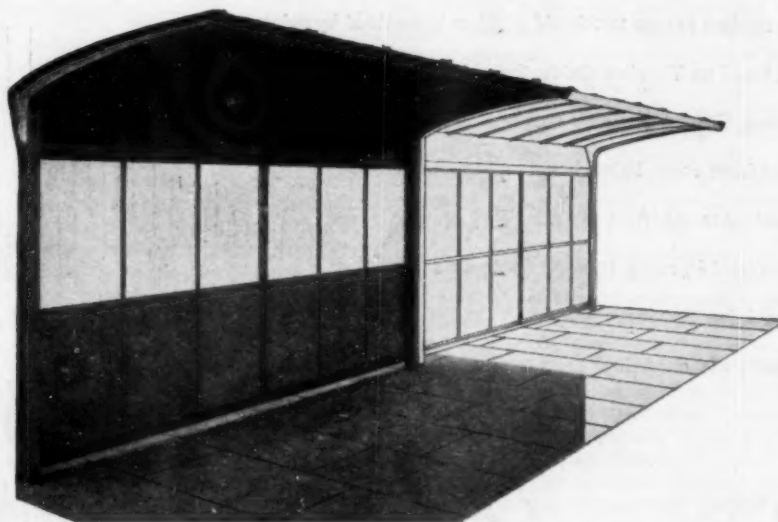
PLANS: BATHS 7, 8, 9



DETAILS OF PARTITIONS IN LUXURY SUITES

SCALE: 1/6 FS

★ At last—a better bus shelter



Standard Units 12' 0" long x 5' 0" projection with minimum headroom of 6' 10"—see List No. 331

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Equally suitable for flat or sloping pavements
Easily assembled on site—requires no deep foundation
Ample strength to resist wind pressure

★ Distinctive appearance, approved by the Council of Industrial Design

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Smethwick, Birmingham & 17 Berners St., London, W.1

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grinning through is no laughing matter. However

the modern answer to this old problem is provided by paints which are based on Titanium Oxide, the whitest and strongest pigment known. These paints have outstanding covering power and need fewer coats. Paints based on Titanium Oxide stand up to sun, frost and rain. They are also unaffected by smog. It pays to use paints containing Titanium Oxide for opacity and durability.



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British Standards Institution Annual Report

THE British Standards Institution has recently issued its Annual Report covering the period from April 1, 1955, to March 31, 1956 (copies obtainable from B.S.I., price 5s, free to subscribers). The Report indicates that the support from industry for its work continues to grow and that the sphere in which it works spreads ever wider so that there seems to be relatively few fields in which the Institution does not operate.

The number of its subscribing members—commercial firms, trade associations, professional organizations, individual professional firms and public authorities—reached a total of 8,650, being 4 per cent higher than in the previous year. One must, however, feel that to have only 8,650 subscribers of all those who use or are in some way affected by the Institution's work is a small number which ought to be increased many times. It may be that there are many who purchase copies of the B.S. publications who do not appreciate that the subscribing members obtain some publications free against part of their subscription and benefit by a reduced price for all publications they may wish to buy.

One of the most interesting parts of the Report is Part IV comprising 84 pages setting out the names of the organizations and their representatives that form the more important B.S.I. committees, such as its Councils and Industry Standards Committees, but in spite of the many committees covered by these lists it is apparent that these pages give only a small proportion of the full total of the B.S.I.'s committees; incidentally this total could not be found in the Report. The committees listed show very clearly that by and large their make-up is extremely representative of all the interests associated with each section of the work. In a very few instances the committees appear to need some additions to make them truly representative of both users and manufacturers but fortunately this does not seem necessary for any of the committees in the Building Division. Some of the committees, on which the users seem somewhat inadequately represented, that caught the eye in glancing through the publications, were those dealing with fine chemicals, rubber and glass in the Chemical Division, the cotton committee in the Textile Division, and the automobile committee on which neither the A.A. nor the R.A.C., who both do much to look after the private motorist, or the commercial vehicle owners are represented.

The number of new and revised British Standards issued in the year, at 209, is the lowest figure given for the last four years which are listed. No explanation for this reduced number appears in the Report or in the "hand-out" to the Press; one can but assume that there are three possible reasons for this diminution of output, firstly, the greatly increasing amount of international work mentioned in the Report which presumably does not produce B.S. publications, secondly, the shortage of skilled staff which appears to affect most non-commercial organizations in these days, and thirdly, the printing difficulties which all organizations suffered early in this year. An expression of thanks is tendered to the innumerable committee members who give their time and pay their own expenses without which the Institution could not operate with the success it achieves.

A very large increase in the sales of B.S. publications is shown in the Report and this must give both the B.S.I. staff and committee members much satisfaction. The total number of copies of B.S. sold in the period was

934,000, of which it is said that about 25 per cent go overseas; of those copies going abroad one can but hope and believe that they make a very real contribution to our export trade and do not provide too much guidance to our competitors to cut our manufacturers' throats on the home market. Equally it is shown that the sales of overseas produced standards in this country has also grown considerably during the year so that it may be that home producers are studying more carefully than ever the requirements of those who import from the U.K.

To hold not less than 3,956 committee meetings in a year is no mean organizational task, even if it is a reduction of about 100 on the previous year, but most unfortunately the Report gives no indication of the number of B.S.I. staff that is required to prepare, arrange and otherwise deal with this very considerable number of meetings.

Part II of the Report contains no less than 110 pages describing the work done or in hand during the period. This part of the Report is arranged in groups under each of the five Divisional Councils, to which is appended descriptions of the work of a number of committees that are organized outside these Councils. The building industry, while primarily concerned with the work under the control of the Building Divisional Council and the Codes of Practice Council is also very much interested with much that for organizational reasons, is placed under the three other divisions, for example, steel and non-ferrous metals in the Engineering Division and plastics and paint in the Chemical Division.

It is quite impossible to give more than the briefest references to this vast amount of work published or in hand and particularly it is impossible for one in the building sphere to take a very serious interest in sphygmomanometers, Kjeldahl apparatus or Dobby lags and pegs, although no doubt their standardization is just as important to those concerned as is the standardization of sand, plywood and cement to the builder and architect.

The Report shows that the Building Divisional Council published five new and 19 revised B.S., most of which have been reviewed in the pages of this Journal, and 35 amendments to existing B.S. to keep them in line with current production. All this is apart from the publication of the well-known loose-leaf edition of the B.S. Building Handbook published during the period under review. The Codes of Practice Division published seven new Codes, most of which are of some interest to those who build.

The more interesting matters covered in the reports of the work of the various building committees is that listed under "Work in hand" as from these it is possible to glean some indication of what the future may bring forth in the way of new or revised B.S. to help the building industry. It is noted that among the work in the cement and concrete field are proposed revisions of all the B.S. for cement, the preparation of a B.S. for sulphate-resisting cement and a B.S. for precast concrete gutters, some of which have certainly not been as satisfactory as is desirable. In the bituminous field B.S.'s are being prepared for oversite coatings and pitch-impregnated fibre drain pipes, while the several B.S.'s for asphalt flooring are being revised. In the asbestos cement products field a standard for cisterns is nearing completion as are revisions of the B.S. for pressure pipes and soil, waste and ventilating pipes.

A considerable amount of work is being done in the

B.S.I. Annual Report

hardware and ironmongery sphere but most of this consists of the revision of existing standards. In the sanitary field it appears that revisions of the B.S. for metal sinks and lavatory basins should appear shortly, together with new B.S. for radiator valves. In the timber sphere all the plywood specifications appear to be under revision and also the standards for double-hung sash windows and for wood blocks for floors.

The Report, which requires no less than a total of 259 pages, is a model of good presentation, but since it is an annual report, it seems rather questionable whether the heavy stiff cover and the rather good quality paper are really necessary. It is unlikely that anyone wants to keep reports such as these for very long nor is it the type of publication which needs to be continually thumbed through during the year of its currency, so perhaps B.S.I. could follow the example of organizations such as the B.R.S. and the R.I.B.A. whose annual publications are in paper covers and devote any resulting savings to further the preparation of its other publications.

The Report indicates that the Institution is doing much work in the sphere of consumer goods, a sphere which touches us all in one way or another. May the Writer, as a mere male householder, ask the Institution to assist his purchasing by taking an interest in carpets, furnishing materials, household linens (or should it be household cottons?) and the sizes of collars; it seems certain that many of us are often deceived when buying textile products while collars by the same size description vary greatly when purchased and still more when the laundry has applied its skill.

The Sutton Dwellings Trust

THIS Trust was founded under the will of W. R. Sutton, the founder of Sutton & Co., Carriers, London. In his will he left the bulk of his fortune to found a charitable trust for the provision of model low-rented dwellings for occupation by the poor of London and other towns and populous places in England. Owing to difficulties with the will and the intervention of two wars, the Trust has been seriously handicapped, but they are to be congratulated on the amount of building both in the way of homes and other amenities they have been able to provide.

In their annual report to the end of 1955 they state that the Trustees have developed 24 estates, six in London and the remaining 18 in large towns in various parts of the country. The total expenditure on the estates is over £4 million and almost 8,000 dwellings have been provided. In addition to dwellings the Trustees have wisely built those amenities which transform a group of houses into a worthwhile place to live.

The main feature of their last report is an article on the village community for old folks, which has just been completed at Crownhill, Plymouth. The scheme was designed by Louis de Soissons and partners.

The village comprises 126 single-storey houses spread informally over the hillside around and through an orchard, planted as part of the scheme. The houses fall naturally into small groups round cul-de-sacs on the more level ground and along the contours of the steeper slopes. There are no private gardens but the ground in front of the houses will be maintained by the Trust as mown lawns with trees, shrubs and flowers.



The new Langstone Bridge, Hayling Island, carried out by Christiani & Nielsen Ltd. to the design of Hampshire County Council's Surveyor's Department (Brigadier A. C. Hughes, C.B.E., T.D., County Surveyor), was opened on September 10, by Mr. Hugh Molson, Joint Parliamentary Secretary to the Ministry of Transport.

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LIGHTWEIGHT DECKING



Whilst hundreds of TROFDEK Contracts have been completed for Schools, Hospitals, Flats, Industrial and Office Buildings, etc., up and down the country—and abroad, development work has continued. The engineering principles, which four years ago led to TROFDEK, have been further developed to even greater advantage. TROFDEK MARK II now offers considerably increased spans—without adding to depth or self-weight. TROFDEK MARK II presents even greater savings in weight, cost, fixing time. Call our technical representatives to give you full details.

LOAD/SPAN TABLE FOR TROFDEK Mk. II

MAXIMUM UNIFORMLY DISTRIBUTED LOADS IN LBS. PER SQ. FT. (DESIGN LOAD = DEAD + LIVE LOAD)

Type	Depth Approx.	Wt. lbs. per sq. foot	Effective Span in Feet (Centre to Centre supports)																																						
			10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	25'	26'	27'	28'	29'	30'	31'	32'	33'	34'	35'	36'	37'	38'	39'	40'	41'							
14	7½"	3.0	32	30	28	26	25																																		
20	7½"	3.5				74	59	48	40	33	28	26	25																												
24	9½"	3.75						77	68	57	48	40	35	30	27	26	25																								
28	11½"	4.0										76	65	56	49	43	37	33	29	26	25																				
35	15½"	4.75																	63	56	50	45	41	37	34	32	28	25													
41	*15½"	5.25																																41	37	34	31	29	27	26	25

* Built up to give two-way falls

To co-operate with Architects who wish to avoid changing existing plans, production of the present Trofdek range will continue until January 1957.

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Manufactured by the makers of **CLADEK** timber curtain walling.

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Pitch Impregnated Fibre Pipes

IT is a long time since we had a new material for drain pipes to be laid underground so that it was with considerable interest that I noticed the production of pitch-impregnated fibre drain pipes had commenced in this country. It is now some time since one firm started its production and I have heard that several others have now entered or are about to enter this field. For any new product it is difficult to know what the requirements are that should be looked for to ensure that it will be satisfactory in use, especially when the product is to be out of sight when it is finally in position, thus the issue of a British Standard for this type of drain pipe, namely B.S.2760 is extremely valuable in providing a basis on which to purchase.

Many years ago I saw these pipes in use in the United States and from the information I have gradually gathered there seems to have been a rapidly increasing use of them which must indicate that they are proving to be satisfactory. It is true that some failures of this type of pipe have been reported from time to time and therefore it is useful to have a British Standard available as guidance to what should be specified, and for the guidance of any firms commencing in this new sphere. I suspect that the majority of the failures which have been reported arose from the bad laying of the pipes rather than from faults in the pipes themselves. The laying procedure is somewhat different to that for pipes of the materials to which we are accustomed, thus it would be very desirable for B.S.I. to issue, as soon as it can, an addition to its present Code of Practice, C.P.301, for the laying of drains, to cover the laying of pitch-fibre pipes.

I imagine that some of the suppliers of traditional types of pipe may be a little unhappy about a new development of this nature which will provide additional competition, but it is essential that the industry should accept changes in materials for drainage just as it accepts them for other components of buildings.

I note from the foreword to the British Standard that the document is based on the United States Standard for pitch-fibre pipes which, no doubt, has been prepared to eliminate any causes of failure which have been experienced with the pipes themselves as they are made and used in that country. It seems possible also that by making to similar requirements British producers may be able to enter the export market without making any alterations to their production. Further, I gather that the B.R.S. has investigated very thoroughly the use of this material for drainage, and no doubt they have satisfied themselves

that if the pipes are made in accordance with this British Standard they are likely to be satisfactory, assuming always that they are properly laid.

A point about these pipes which appeals to me is that they are available in long lengths, thus reducing the number of joints to a minimum because so many failures in pipelines seem more often to be due to failures in jointing rather than failures in the actual pipes themselves. The British Standard calls for normal lengths of between 5ft and 10ft as may be offered by the maker, but short lengths are also available. The other attractive point is that the joints are very easily made as the pipes are forced together by inserting the tapered ends into coupling pieces which, owing to the nature of the pipe material, need no actual joining materials as once a pipe is forced home into its collar there is very great difficulty in separating them. The pipes are available in a number of diameters from 2in to 6in (in steps of 1in), and in addition 8in. In order to provide for the possibility of making a certain amount of change of direction, couplings to provide 5deg deviation are available in addition to the normal straight coupling pieces.

The attraction of pitch-fibre pipes is their light weight which is a big factor in regard to their transport, and also in their laying; this light weight is a great advantage in the field of exports when compared with most other pipe materials. It would seem that these pipes are also much less liable to accidental damage in transport to sites and also during laying which are very important factors in relation to export, as breakage causes great inconvenience in the overseas markets. The fact that, since there is no need to wait while joints set, pipes may be laid and tested and even trenches filled in on the same day is advantageous to contractors.

Another attractive feature of this British Standard is that in addition to providing for tests for the pipe material itself, such as chemical resistance, water absorption, resistance to boiling water, resistance to heat and resistance to kerosene, there are also requirements for dry and wet strength, resistance to flattening and a beam strength test for the pipes as made. The strength tests are a very desirable requirement for any pipe which is to be buried and could, with advantage, be added to the other British Standards for pipes, the strength of which are not defined but usually depend on specified thicknesses.

The British Standard includes provisions for 45deg and 90deg bends in all sizes except the 8in where the 45deg bend only is available. It would seem however that in practice bends of other angles will need to be

added if the British Standard is to meet normal demands. The foreword of the Standard says that certain fittings are being manufactured of material similar to that of the pipes and it would seem desirable that a standard range of fittings made in the pitch-fibre material should be included in the British Standard as soon as possible.

I understand that short radius bends may soon be available but at the moment the main fittings are junctions consisting of any combination of diameters at any angle required.

The British Standard includes a very brief appendix covering the jointing and laying of this type of pipe so that some guidance is available pending the extension of C.P.301 to cover them. It is suggested that the pipes should be laid so that they are uniformly supported for their full length but that concrete will not normally be needed except where local bye-laws or other circumstances require it. This in fact raises a point on the interpretation of C.P.301 and many bye-laws as so often there seems to be a requirement that all drain pipes should be laid on a bed of concrete, but frequently this seems to be quite needless as there is an adequate and even trench bottom on which the pipes can be laid. A full description of the method of jointing the pipes is given in which it is pointed out that the joints do not require packing, jointing compound or lubrication, and when the pipes have to be jointed to other materials a sand and cement joint can be used.

The experience of the use of pitch-fibre pipes in this country is as yet relatively small, although it appears to be growing quite rapidly, but as there is something like forty years experience of their use in the United States they should be satisfactory. However, I have no doubt that the competitors, who may feel that the production of these pipes will have some effect on their sales, will wish to offset as far as possible the effects of competition by the collection of examples of failures which have been reported from the United States; in adopting such a line manufacturers should bear in mind that there is little doubt that if one tried it would be possible to find examples of failures of the traditional materials, thus any criticisms offered on the newer developments have to be considered very carefully to be sure that they are justified and not merely raised on account of the fear of competition from the new product.

To save the purchasers a great deal of trouble in having to carry out the necessary tests on pitch-pipes it would seem very desirable that those firms

Two Versatile Canadian Species of Timber

OF late years, several woods have come on to the market which were not previously used for constructional purposes. Some of these have shown their worth for certain purposes, while others have proved to be "marginal." At the same time, with the rise in the general standard of living, there have been many new demands for wood, and as a result, there has been a good deal of uncertainty as to which wood is suitable for which purpose.

There are certain timbers which are pre-eminent in their spheres—for example, walnut, willow, balsa and lignumvite. Their field is narrow and the particular use the consumer has in mind generally points to one of those woods and no other. But very many uses allow for more than one choice, and the consumer, whose speciality is building or manufacturing and not botanical analysis, is faced with a difficult burden in deciding which of several timbers he should choose. His problem would be solved if he were presented with an *all-purpose* timber. Unfortunately, there is no such material, but he can certainly reduce his difficulties by familiarising himself with the next best thing—the *multi-purpose* timbers.

There are relatively few such timbers in the world, and they include

two very well known Canadian species—western red cedar and Pacific coast hemlock. Both come from British Columbia and are in excellent supply. They are produced to standard grades and sizes in highly efficient mills and they answer to specific names and not general descriptions. Their outstanding virtue is their versatility. It would probably be easier to list the common uses to which they should not be applied than those to which they should.

Pacific coast hemlock—*Tsuga heterophylla*—is one of the principal commercial species of British Columbia. It is sometimes known as Western or West Coast hemlock. This species is held in high esteem and gives an infinitely better performance in use than others of the genus produced in North America.

The wood has certain general characteristics which fit it for a wide variety of uses. It is fine-textured, straight-grained, moderately soft and has high weight/strength and weight/stiffness ratios. Its gluing properties are good and as it normally contains neither pitch nor resin, it is easily painted, varnished or enamelled. Pacific coast hemlock is comparatively free from shake and does not warp or twist excessively. The timber is well known for its strength, ease of working and its ability to absorb preservative under pressure.

Its straightness makes it well suited to constructional purposes. It takes nails without splitting and grips them tightly, and these qualities, together with the ease of sawing, make it a favourite with builders. Because of its strength and stiffness, it is recognised as a high grade material for structural members.

Ladder manufacturers in North America have chosen Pacific coast hemlock for its strength and lightness and above all, for its reliability. It is strong because it has so little grain and it offers high resistance to shock. The clear grades are suitable for joinery and doors and there is a wide variety of small uses—for example, broom, mop and tool handles—which are indicated by its freedom from splintering. Its lack of resin enables it to take glue well and it is widely used as core stock for veneering.

Several characteristics make Pacific coast hemlock an outstanding wood for packaging. Its lightness (28lb per cubic foot at 12 per cent moisture content) keeps freight costs within reasonable bounds. When dried, its lack of odour and taste make it suitable for crating foodstuffs and, of course, the ease of nailing is extremely important.

There are numerous interior uses—floors, walls, skirting, built-in furniture, shelving, lockers, kitchen cabinets, kitchen and work tables, counters, pews and board-room tables—anything, in fact, which calls for precise working, hard wear, straightness and a good finish.

The wood can be used for railway

sleepers as it is easily pressure-treated with preservative and is not affected by the proximity of metal. Untreated, it is satisfyingly durable, providing normal care is taken to ensure that the timber is not subject to alternating wet and dry conditions.

The other timber—western red cedar—is one of the lightest of the commercial softwoods. It is not among the strongest of British Columbia timbers, but, nevertheless, there is a wide field in which its performance excels that of all others.

Western red cedar—*Thuja plicata*—is noted for its durability. The wood contains a natural, preservative oil—the odour of which, incidentally, tends to repel insects and vermin. It has a charming rural look about it and its weathering qualities keep maintenance costs low. It is light in weight (22lb per cubic foot air-dried) and is worked so easily that it has undoubted advantages on farms and other sites where no skilled carpenters or power tools are available.

Wherever wood comes in contact with water or vapour, western red cedar must be considered for use. It is particularly efficient in laundries and textile mills and has been used extensively for all kinds of water tanks, silos, culverts and cooling towers.

Western red cedar can be used for any exterior work on housing. Since it exudes no pitch, it paints well. Under atmospheric changes, it is more stable than most woods and, due to the fact that it has a large number of dead-air cells, it has unusually good insulating properties. So popular is it for housing that three-quarters of the British Columbia cedar production is made into cladding materials. In brief, there is practically no exterior use for which western red cedar cannot be favourably considered.

The wood makes a charming interior wall panel because of the attraction of its natural surface. The colour varies from a light-straw shade to a dark reddish-brown. This colour variation, its attractive vertical and flat-grained surface patterns and freedom from pitch and resin, fit it for every indoor service.

The cedar roofing shingle is extremely well known, and needs no further justification than the virtues already mentioned. Two further uses that may be noted are for garden structures and heavy timber roof decking. In all cases, the low cost and infrequent need for maintenance are the factors which made this wood the general choice for such purposes. Its light weight is an additional advantage, particularly for portable buildings.

In the future, Pacific coast hemlock and western red cedar will continue to be the favourites of timber merchants, constructional firms and others who have to deal with timbers that have outstanding versatility.

JOHN DUNCAN

Fibre pipes (cont)

making this type of pipe should operate the B.S.I. Certification Marking Scheme based on quality control of their products. Unlike pipes of most other materials there seems to be much less risk of variability between pipes made by this process, thus quality control would give a very fair indication that the whole production is up to the minimum called for in the British Standard.

One of the advantages which producers of traditional materials appear to have, at least at the moment, is that there are not yet available certain fittings in pitch fibre, such as channels, branch bends, traps and gulleys, thus users will have to continue to use the traditional materials for these fittings and also will have a drainage system composed of mixed materials until such time as it is possible to make all fittings necessary for any system in pitch-fibre. The competitors will at least have the satisfaction that the most expensive part of the average system will still have to be provided in materials other than pitch-fibre.

DUTCH UNCLE

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This illustration shows the new London offices of Richard Costain Ltd. which are fitted with CRITTALL PURPOSE-MADE UNIVERSAL CASEMENTS POSITIVELY RUSTPROOFED by the hot-dip galvanizing process. The offices were designed by the Company's staff in collaboration with *Mr. R. N. Wakelin, F.R.I.B.A.* (of Messrs. Campbell Jones & Sons), *Consultant Architect.*

Of all the many calls upon their services in the manufacture of purpose-made windows none has a readier welcome at Crittalls than that which poses some new problem in function or design. For it is out of the accumulated experience which comes from tackling such new concepts, that Crittalls will be made more able still to contribute their skills, and in greater measure, to the buildings of the future.

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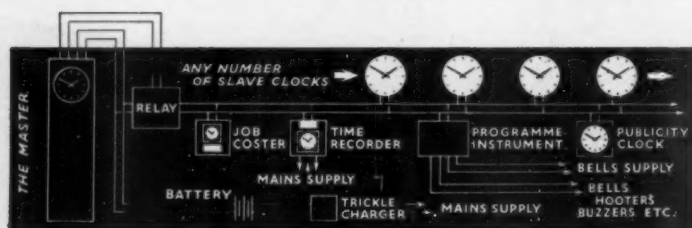


THE CLOCK ON THE WALL

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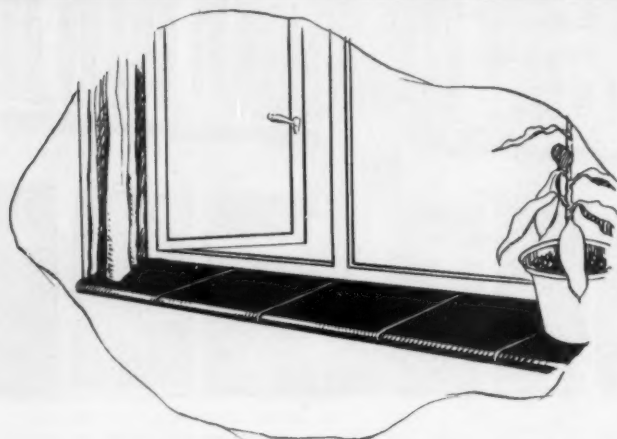


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Industrial Notes

● A standard Fire Resistance Test was recently made by the D.S.I.R. and F.O.C. in conjunction with the Joint Fire Research Organisation on an 11in cavity wall constructed of 4½in plastered clinker blocks manufactured by Obo Construction Co. Ltd., of Ivy Bridge, London Road, Twickenham. The blocks used stood up to the requirements of B.S.S. 476/53, and in addition to a four-hour full test during which time the temperature on the unexposed face of wall never rose above 61deg C. Distortion of the wall never developed more than ¼in and by the end of the test period the deflection was only ¼in. During the period of the test a load was imposed upon the wall of 8tons 10cwt and this was successfully reapplied after 48 hours. The load was then increased until failure occurred at a load of more than 45 tons.

● Of the total of 2,945 Telex subscribers in the United Kingdom 855 were newcomers to the service in 1955. Since January 1 this year 542 new business concerns, of which 258 were in London and 284 in the Provinces, were connected to the system. There are 75,000 business houses throughout the world utilising Telex.

● On August 30 a new A.E.I. Lamp and Lighting Company showroom with a floor area of approximately 1,600 sq. ft was opened at the company's new regional headquarters at 74 Waterloo Street, Glasgow. The

interior has been designed by Basil Spence & Partners and Mr. J. Hardie-Glover, the architect in charge.

● Mr. P. I. Hayman, B.Com., A.C.A., has been appointed Secretary and Chief Accountant of The Trussed Concrete Steel Co. Ltd., having resigned as Group Secretary and Chief Accountant of James Burness & Sons Ltd., and as Director of Seawork Ltd.

● A four page bi-monthly news sheet, is being produced by the makers of Protim water-free timber preservatives. Features of the first edition are an article on inspecting for dry rot by a Consultant Surveyor, interesting details of the nation-wide timber protection service offered by the organisation, and a picture quiz on timber pests for which prizes are offered. As the venture has the backing of some of the leading Timber Merchants and Importers, *Protim News* is being distributed to a large number of Architects, Builders and Surveyors throughout the country. A limited number of copies are also available on application to the Editor, 356/358 Evelyn Street, London, S.E.8.

● Black & Decker Ltd., have recently set up an International Division to co-ordinate and intensify the development of markets outside the U.S. and Canada. To head this Division Mr. Robert Appleby has been appointed Director of International Operations of the Black & Decker Mfg. Co. Ltd., of Townson, Maryland, U.S.A., the

parent company of the organisation. He continues to hold his present position as Director and General Manager of Black & Decker Ltd., Harmondsworth, Middlesex, the English company. Mr. F. W. McCartney, B.Sc., M.I.P.E., the former Production Director has been appointed Assistant General Manager at Harmondsworth. At present Black & Decker supplies markets throughout the world from the two manufacturing plants in the U.S. and England. A third is now under construction in Australia and will be completed early in 1957. When this new Melbourne plant starts production it will supply the needs of Australia, New Zealand and the Far East.

● The price of the "Hurdapta" Gas Fire Attachment has now been fixed. This will be available during the coming heating season at Gas Board Showrooms, Department Stores, Ironmongers and Builders' Merchants at a retail price of £9 19s 4d including purchase tax.

● As a contribution to the price stabilisation policy of the Government, the Laboratory Furnishers who are members of the British Laboratory Ware Association have decided to stabilise the prices of the laboratory equipment and apparatus, other than chemicals, they manufacture and distribute, for a period of six months from September 1, 1956. This decision applies to the prices, for the Home and Export markets, fixed by each Laboratory Furnisher individually for its own proprietary goods and for non-proprietary goods and is subject to the costs of materials and wage rates remaining stable.

● Mr. G. Russell Jones, Managing Director of A.C.E. Machinery Ltd., with Sales Manager Mr. A. F. Ferris, visited the Zagreb International Fair where some of their machines were exhibited for the first time. They will be on the continent for a month, during which time they will discuss sales and future policy sales with their agents in Yugoslavia, Germany, Italy, Austria, Switzerland and France.

● The terms of the issue by George Cohen Sons & Co. Ltd., announced on August 23, 1956, have now been fixed. It is proposed to issue, by means of a placing, £1,500,000 6 per cent unsecured Loan Stock 1975/80 at par. The Brokers are Cazenove & Co.

● Mr. L. Drucquer, M.I.E.E., was appointed a Director of The British Thomson-Houston Co., on August 29, 1956, with special responsibility for home sales.

● The new address of Sterling Advertising Ltd., is 17-19 Colmore Row, Birmingham, 3. Telephone No.: Central 2772 and 5540.

John Walker & Sons new blending and bottling premises at Kilmarnock were opened by Commander G. H. Hughes-Onslow, D.S.C., R.N. (ret.), last week. The photograph shows part of the south elevation.



NEW PRODUCTS

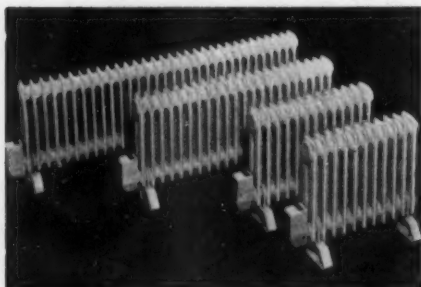
Hurseal Ltd. have introduced a new "J" series of 2-column oil-filled electric radiators, Fig. 1. There are 4 radiators in the series and all are 17in high by 3½in deep. The loadings are 0.5, 0.75, 1 and 1.5 kw with respective lengths of 20in, 28in, 38in, and 53in. They are supplied with built-in thermostats. Feet or castors are supplied for floor mounting, as desired, but brackets are available for wall fixing. Finished in cream and bronze or blue, eau-de-nil, white and gold.

★

The Culsynk double drainer, Fig. 2, with newly styled sink cabinet ND54/C1854 has been introduced by Leisure Kitchen Equipment Ltd. The Culsynk is in porcelain enamel on 16g steel. The draining boards are panel fluted with "pressed in fall" and both bowl and boards are sound deadened. The cabinet, of electrolytically zinc-coated steel sheet is finished in stove-baked enamel. The complete unit is 54in long by 18in wide and the bowl measures 16in by 12in by 7in deep. Available in white, cream, pastel blue, and green or a combination of these colours.

★

Wolf Electric Tools Ltd. announce a new range of portable electric drills. There are three heavy duty drills with capacities of ½in, 5/32in, and ¾in, and a ½in low speed drill. The handles are fully insulated pistol grip type. A special arrangement for the incoming cable and earth wire



1



2

is included for safety, the earth position being marked with "E" and the international sign. The ½in and ¾in machines are fitted with 0.275 b.h.p. motors and the others with 0.33 b.h.p. motors of special design. Fig. 3 shows No. WDZC ¾in machine.

★

The "Nocturne 505" portable gas heater, Fig. 4, is the latest addition to the "New Word Range" of space heaters produced by Radiation Ltd. The new heater weighs 5½lb. and has a gas rating of 6,000 B.Th.U. per hour. The wire guard is chromium plated and the reflector is highly polished. Gas connection is ½ B.S.P. female taper, and a constant pressure governor is fitted. The fire measures 10in high by 14½in wide by 6½in deep.

★

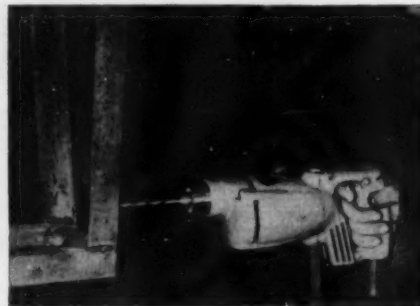
The Grange-Camelon Iron Co. Ltd., a member of the Federated Foundries Co., have made a new addition on to their Sofono range, the "Full view" fire, Fig. 5. It is a continuous burning open fire with a drop front, which when lowered lies level with the bottom grate 3½in above hearth level. The ashpit door opens from the top in four check positions to give air control. The ashpan is of the shovel type operated by a tool which slides into a locking device. The grate bottom is reversible and a deepening plate is available. The "Full-view" is suitable for use with any solid fuel and is finished in a standard range of eight colours.

★

The "New County" hot water towel rail, Fig. 6, has been produced by W. C. Youngman Ltd. The one-piece top and side rails are constructed from 1in dia. by 18g, and the intermediate rail from ¾in dia. by 20g solid drawn brass tube. The ¾in B.S.P. connections are 4in from ground to centre, directed inwards, and all joints are brazed. A coin operated air release valve is situated on the underside of the top rail. Mounted on 4in dia. foot plates the rail is finished in chromium plate and stands 36in high by 30in wide.

★

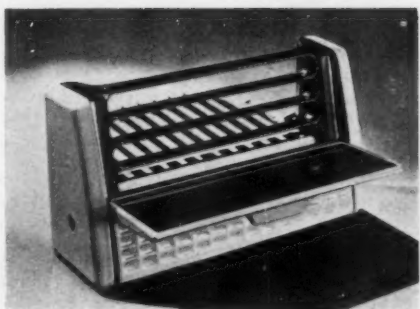
British Bitumen Emulsions Ltd. announce the introduction of "Wearproof" which is an addition to a concrete or cement mix and enables this to be laid at a ½in thickness or less and to a feather-edge finish where necessary. It is an economical means of reconditioning concrete floors and the new surface is normally ready for service 36 hours after laying. It requires no hacking-out and is jointless, even between sections laid at different periods. "Wearproof" is claimed to be resilient, noise absorbing, non-slip and entirely dust free.



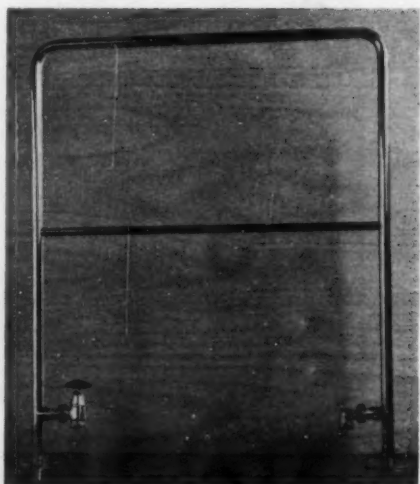
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4

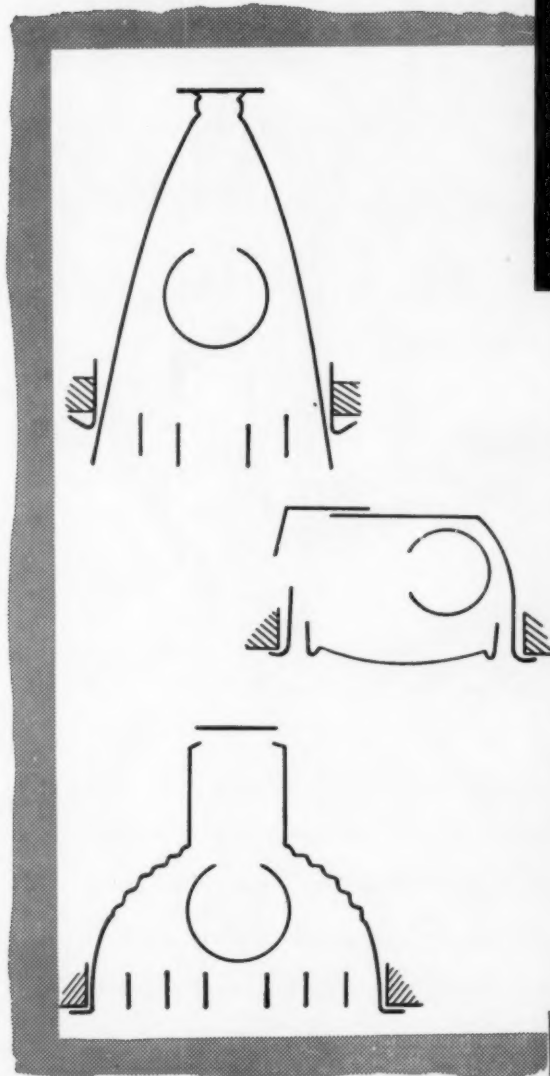


5



6

recessed lighting



Lighting for all forms of display, for emphasising showroom features, or for exhibition work are included in the Mondolite series of fittings. Recessed into ceiling, they are unobtrusive and can be used in multiple for decorative effect. For shops, showrooms, showcases or windows—these Mondolite recessed fittings are indeed an architectural asset.

The Mondolite universal lighting series is part of the comprehensive Troughton & Young range which also includes Versalite for directional lighting, Ultralux for general lighting, and Tubalux for fluorescent lighting—all to be seen at THE LIGHTING CENTRE.

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And at 46 Rodney Street, Liverpool 1

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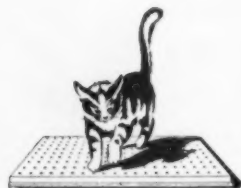
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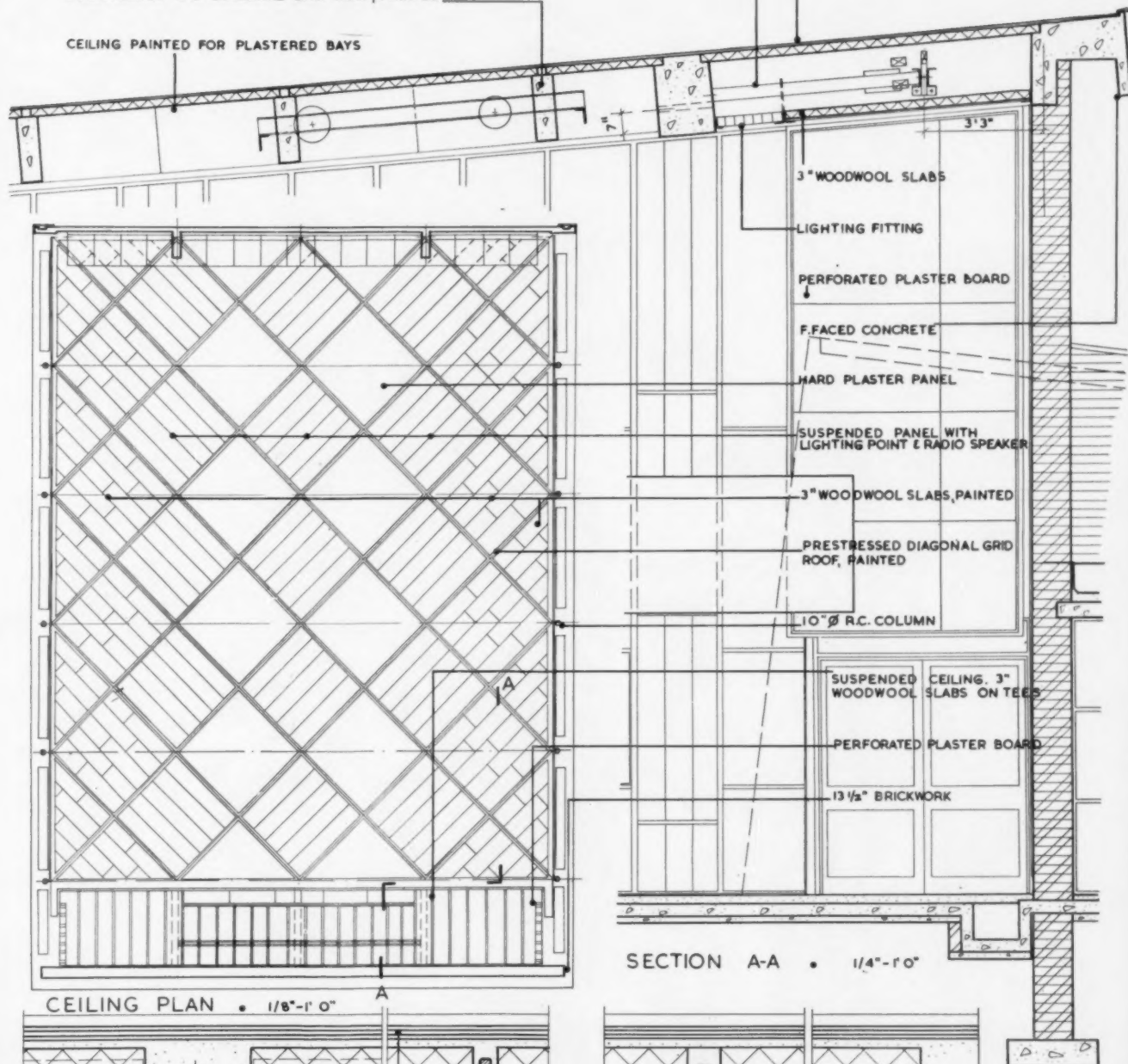
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4" X 2" CHANNELS WITH 1/4" PLATE WELDED ON

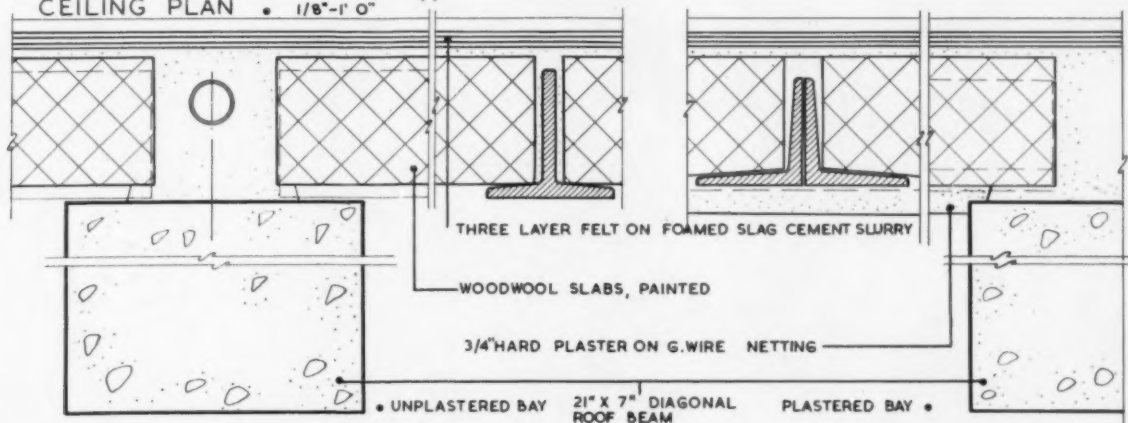
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THEY SEE THE ADVANTAGES



Clear, even light from a Lumenated Ceiling enhances the Manchester Office of the Co-operative Permanent Building Society. Architect: L. Blease, A.R.I.B.A., A.R.I.C.S. Electrical Fittings: Bell Bros. & Co. (London) Ltd.

They see things clearer in offices with a Lumenated Ceiling. Pleasant light of correct intensity is diffused from the ceiling area, providing comfort and efficiency at desk or table. Eye-strain is reduced because there is no glare or shadow.

The Lumenated Ceiling fits in perfectly with modern trends in design. Overhead beams and pipe-lines are all completely screened by its clean, translucent surface. It also forms an ideal method of modernising old interiors giving a handsome new ceiling at lower level in offices, showrooms, restaurants and premises of every kind.

See the advantages, too, in installation and maintenance! The Ceiling is light in weight with a durable, non-inflammable, dust repellent surface which requires little cleaning. It can readily be combined with air-conditioning or acoustic systems.



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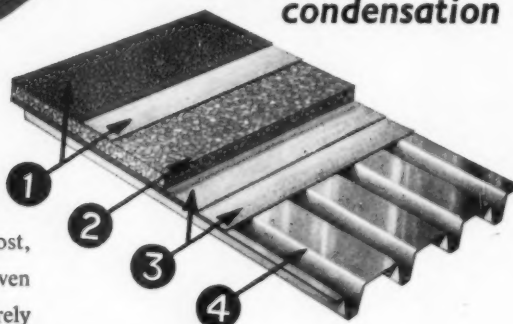
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This new factory at Norwich extends still further the activities of the firm of Mackintosh long famous for their toothsome products.

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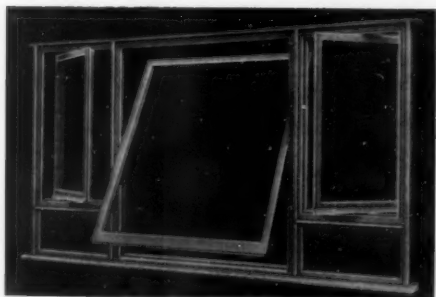
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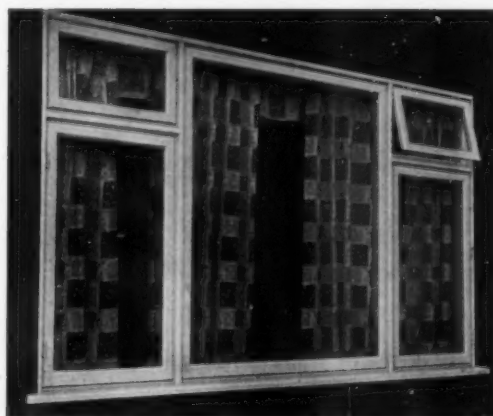
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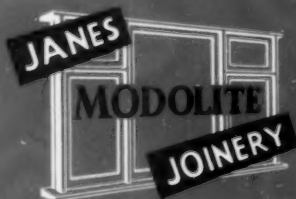
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DATE OF ISSUE 20 SEPTEMBER, 1956

Notes below give basic data of contracts open under locality and authority which are in a bold type. References indicate: (a) type of work (b) address for application. Where no town is stated in the

CONTRACT • NEWS •

OPEN

BUILDING

ALCESTER. (a) Erection of Cookhill Village Hall. (b) Loveday and Co., Osborne House, Church Green East, Redditch.

BARKING B.C. (a) Provision and driving of approx. 200 reinforced concrete piles with reinforced concrete beams and slabs to five blocks of houses, flats and maisonettes on the Mayesbrook Meadow estate. (b) Borough Engineer, Town Hall. (c) 2gns. (e) September 29.

BARNSTAPLE B.C. (a) (Contract A) Erection of 40 houses at West Sowden and Forches estates, and (Contract B) erection of 11 old people's bungalows at West Sowden estate. (b) Borough Surveyor, The Castle. (c) 2gns. (e) October 13.

BEDFORDSHIRE EDUCATION COMMITTEE. (a) Carrying out an extension to a hatted classroom to provide a scullery and installation of a sewage filtration plant with appurtenant drainage works at Streatley Bramingham Road C.P. school. (b) County Architect, Shire Hall, Bedford. (d) September 22.

BLABY R.C. (a) Erection of three pairs of one-bedroom bungalows at Moores Lane, Enderby. (b) Council's Architect, Council Offices, Narborough, Leicester. (c) 2gns. (e) October 8.

BLOFIELD AND FLEGG R.C. (a) Erection of 40 dwellings at Laundry Lane estate, Thorpe St. Andrew. (b) Council's Clerk, Council Offices, Acle, Norfolk. (c) 2gns, cheques payable to Council. (e) October 8.

BOURNEMOUTH B.C. (a) Erection of a steel-framed brick building partly two and three storey of some 48,600 sq ft with other works to form the new West Howe Secondary School, Duck Lane. (b) Borough Architect (Room 106), Town Hall. (c) 5gns. (e) October 8.

BRIGHTON B.C. (a) Erection of an estate office at Lewes Road estate. (b) Borough Surveyor, 26-30 King's Road. (c) 1gn. (e) October 1.

BROWNHILLS U.C. (a) Erection of 7 aged persons' bungalows off Sycamore Road, Shelfield. (b) Council's Engineer, Coombe House. (c) 2gns. (e) October 9.

BURGESS HILL U.C. (a) Erection of a block of five houses and six pairs of semi-detached houses on "The Close" site. (b) Council's Clerk, Council Offices, Church Road. (d) September 24.

CONISBROUGH U.C. (a) Erection of 70 houses at Old Road. (b) G. Chadwick, 5 High Street. (c) £2. (e) October 4.

CROOK AND WILLINGTON U.C. (a) Erection of (1) 50 houses at Hall Lane extension site, Willington, and (2) 50 houses at Watergate estate, Crook. (b) Deputy Clerk, Council Offices, "Glenholme", Crook, Co. Durham. (c) 2gns each contract, by cheque. (d) October 1.

DARLINGTON CO-OPERATIVE SOCIETY LTD. (a) Erection of proposed self-service branch premises at Burnside Road, Firthmoor estate. (b) R. C. Steel, 90 Westmorland Road, Newcastle-on-Tyne. (d) September 28.

address it is the same as the locality given in the heading (c) deposit (d) last date of application (e) last date and time for submission of tenders. Full details of contracts marked * are given in the advertisement section.

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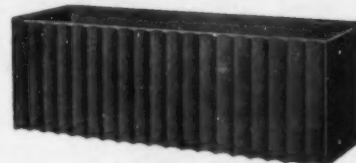
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BAYwater 8721/2

DURHAM C.C. (a) Erection of additional lavatory accommodation at Esh Winning school, canteen scullery at Silksworth modern school, canteen scullery at Spennymoor Mount Pleasant infants' school, re-roofing byres at Low Hulam Farm, Ingleton. (b) County Architect, South Street. (d) September 26.

DURHAM C.C. (a) Erection of (1) classroom and adaptations to form staff room at Lanchester Endowed Parochial school, (2) hall and classroom and adaptations at Spennymoor North Road junior mixed school, (3) 8 police houses and two garages at Kitswell Lane, Lanchester, (4) 12 police houses and two garages at West View Road, Hartlepool, and (5) two police houses at Ring Road East, Newton Aycliffe. (b) County Architect, South Street. (e) September 26.

EBBW VALE U.C. (a) Erection of a block of six shops and ten flats at the Tredegar Road site. (b) Council's Architect, Council Offices. (c) 3gns by cheque payable to Council. (e) October 2.

ESSEX C.C. (a) Erection of home-craft/needlework room at Halstead Grammar School. Approx. cost £5,250. (b) County Architect, County Hall, Chelmsford. (d) September 29.

EXETER. (a) Erection of 30 flats at Heavitree Bridge, 31 dwellings at Countess Wear, and 41 dwellings at Stoke Hill. (b) City Architect, Municipal Offices, Exeter. (c) 3gns. (d) September 24.

HASLINGDEN B.C. (a) Erection of 12 one-bedroom flats, 12 two-bedroom houses, and six three-bedroom houses at Broadway. (b) Borough Surveyor, Municipal Offices, Haslingden, Rossendale, Lancashire. (c) 2gns. (e) September 29.

HASTINGS B.C. (a) Erection of a block of six 2-storey dwellings on Blackman Avenue, Hollington. (b) Borough Engineer, Town Hall, Hastings. (c) 2gns payable to Corporation. (d) September 24. (e) October 22.

ISLE OF WIGHT C.C. (a) Erection of proposed grammar-technical school, Gunville, Newport. (b) County Architect, County Hall. (c) 3gns, payable to Council. (d) September 26. (e) November 19.

LIVERPOOL C.C. (a) Carrying out alterations, repairs and decorations at "A" 37 Falkner Street, Liverpool, 8, and "B" 50 Canning Street, Liverpool, 8. (b) City Engineer, Municipal Buildings. (d) September 24.

LONDON—PADDINGTON B.C. (a) Erection and completion of one block, comprising 8 flats of brick load-bearing construction, external pram sheds, paths, drains, and external services and site works, at the site of Nos. 169/175 Kilburn Park Road, N.W.6. (b) Town Clerk, Town Hall, Paddington, W.2, together with particulars of works of a similar nature undertaken and local authorities and/or architects under whose supervision they have been carried out, with details of the nature and scope of the contract in each case, and the date when it was completed. (c) 2gns. (d) September 26.

LONDON—WALTHAMSTOW B.C. (a) Erection of (1) two flats in a two-storey block on a site in Grove Road, E.17, (2) two flats in a two-storey block on a site in Eden Road, E.17, and (3) 12 flats in a three-storey block on a site at the junction of Hoe Street/Queens Road, E.17. (b) Borough Architect, Town Hall. (c) 2gns each contract. (e) October 5.

MACCLESFIELD B.C. (a) Conversion of branch libraries into public conveniences at London Road and Chester Road. (b) Borough Architect, 3 Jordangate. Contractors must state in their application for which conversion they wish to enter. (e) October 8.

MAGOR AND ST. MELLONS R.C. (a) Erection of 40 houses, road drainage and sewage works at Blacktown, Marshfield. (b) Powell and Albert, Martins Bank Chambers, High Street, Newport. (c) 2gns. (e) September 27.

MANCHESTER CORPORATION. (a) Erection of a community centre. (b) City Architect, P.O. Box 488, Town Hall. (e) October 5.

MERIONETH. (a) Carrying out improvements to Nazareth Chapel schoolroom, Penrhynedraeth, for the Chapel Trustees. (b) Griff Morris, Brecon Place, Portmadoc. (e) September 28.

N. IRELAND—NORTHERN IRELAND HOSPITALS AUTHORITY. (a) Erection of a new administrative building and a new recreational building at Forster Green Hospital, Fortbreda, Belfast. (b) Messrs. W. H. Stephens and Sons, 13 Donegal Square North, Belfast. (c) 3gns. (e) September 28.

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N. IRELAND—NORTHERN IRELAND HOSPITALS AUTHORITY.

(a) Carrying out alterations to Wards 4 and 5, and construction of a new lift shaft at Musgrave Park Hospital. (b) Messrs. Thomas T. Houston and Co., 26 College Gardens, Belfast. (c) 3gns. (e) October 2.

N. IRELAND—LISBURN U.C. (a) Carrying out alterations at the pork weighing shed, Smithfield, Lisburn. (b) Town Surveyor, Town Hall. (c) 2gns. (e) October 1.

OLDBURY B.C. (a) Erection of 26 houses in Pitfields Road, Branhall estate. (b) Borough Engineer, Municipal Bank Chambers, Birmingham Street. (c) 2gns. (d) September 28. (e) October 17.

POCKLINGTON R.C. (a) Erection of 2 houses at Bishop Wilton and 6 houses at High Catton. (b) Council's Surveyor, Council Offices.

POOLE B.C. (a) Erection of (Contract AW/5) 5 pairs of houses, and (Contract AW/5A) 6 pairs of houses (3 bedroom), 6 pairs of houses (2 bedroom) and 2 blocks of 4-3 bedroom houses, on Alderney West estate. (b) Borough Engineer, Municipal Offices. (c) 2gns each contract. (e) September 27.

ROCHFORD R.C. (a) Erection of a block of four one-bedroom bungalows, 10 two-bedroom bungalows, 32 two-bedroom houses and 32 three-bedroom houses on Twyford estate. (b) Council's Engineer, Council Offices. (e) October 2.

ST. HELENS B.C. (a) Contract No. 2088 Erection and completion of 100 dwellings to be built at Mount Pleasant site, Derbyshire Hill estate. (b) Borough Engineer, Town Hall. (c) 2gns. (e) October 19.

SCOTLAND—KIRKCALDY ROYAL B.C. (a) Erection of 149 two-storey cottages on Muttonhall site. All or separate trades. (b) Messrs. Gentles and Son, Osborne House. (e) October 3.

SCOTLAND—WEST LOTHIAN C.C. (a) Erection of 16 houses at Ballencreeff Toll, Bathgate. (b) County Clerk, County Buildings, Linlithgow, indicating the trade(s) for which schedules are desired, i.e.: (1) excavator concrete and brickwork; (2) carpenter, joinery and glazier works; (3) slater and roughcast works; (4) plaster and cement works; (5) plumber work; (6) electrical work and (7) painter work. (d) September 26.

SETTLE R.C. (a) Erection of (1) two pairs of houses, (2) 12 pairs of houses, (3) two blocks of four houses, and (4) two blocks of four bungalows at Mill Close site. (b) Council's Engineer, Town Hall. (c) 2gns. (e) October 5.

SOUTHAMPTON B.C. (a) Erection of annexe No. 2 at Grove Street technical college. (b) Borough Architect, Civic Centre. (d) September 22. (e) October 16.

STAFFORDSHIRE C.C. (a) Conversion of an existing building at Stone Police Station into offices. (b) Council's Clerk, County Buildings, Stafford. (d) September 25.

SUTTON AND CHEAM B.C. (a) Erection of four flats and five houses in two storeys and 18 flats in three storeys at the corner of Benhill Wood Road and Oakhill Road, Sutton. (b) Borough Engineer, Municipal Offices, High Street, Sutton, Surrey. (c) 3gns. (d) October 1. (e) October 30.

UTTOXETER URBAN COUNCIL. (a) Erection of 17 pairs of three-bedroom type houses, together with incidental works at Weaver Lodge estate. (b) Council's Engineer, Council Offices, The Old Bank House, 72 High Street. (c) 2gns. (e) October 12.

WEST RIDING OF YORKSHIRE C.C. (a) Carrying out adaptations and alterations to buildings to provide additional dormitory and toilet accommodation at Yorkshire (W.R.) Institute of Agriculture, Ashkam Bryan, nr. York. (b) County Architect, Bishopgarth, Westfield Road, Wakefield. (c) 2gns (e) October 8.

WEST SUSSEX C.C. (a) Erection, in brick construction, of first instalment of two classrooms and ancillaries, of new 3 F.E. junior school, Horsham. (b) County Architect, County Hall, Chichester. (d) September 27.

WETHERBY R.C. (a) Erection of two pairs of houses at Bramham. (b) Messrs. Needham, Thorp and White, 5 High Petersgate, York. (e) October 1.

WOKING U.C. (a) (Contract No. 10) Erection of three pairs of houses on Maybury estate. (b) Council's Engineer, Council Offices. (c) 2gns. (e) October 19.

PLACED

Notes on contracts placed state locality and authority in bold type with (1) type of work, (2) site, (3) name of contractor and address, (4) amount of tender or estimate. † denotes that work may not start pending final acceptance, or obtaining of licence, or modification of tenders, etc.

BEBINGTON B.C. (1) 112 dwellings. (2) Mill Park Estate, Eastham. (3) Gregory Construction (North-Western), 37 Hope Street, Liverpool. (4) £161,995.

DEAL B.C. (1) 30 flats. (2) St. Martins Road Estate. (3) S. C. Ward Ltd., Ramsgate, Kent. (4) £42,049.

BIRKENHEAD. (1) Erection of Pelican Hotel, for West Cheshire Brewery Co. Ltd. (2) Woodchurch. (3) A. Hopley (Little Sutton) Ltd., 45 Station Road, Little Sutton, Wirral.

DERBY CORPORATION. (1) Phase 1 of Derby and District College of Art and Technology. (3) Gee, Walker and Slater Ltd., Uttoker Old Road, Derby.

BROWNHILLS U.D.C. (1) 91 houses and 31 old people's bungalows. (3) Gregory Housing Ltd., 21 Farncombe Road, Worthing, Sussex. £179,096.

LEIGH, LANCs. (1) Miners Welfare centre. (2) Twist Lane. (3) Levi Thomasson and Sons Ltd., Lymm, Cheshire.

NORTHAMPTONSHIRE C.C. (1) School. Weston Favel. (3) W. J. Richardson and Son Ltd., 30-32 Wycliffe Road, Northampton.

OXFORD CITY COUNCIL. (1) Hostel for old people. (2) Bayswater Road. (3) Speight Development Co. Ltd., Leighton Buzzard. (4) £49,049.

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SHEFFIELD CORPORATION. (1) 58 maisonettes, 2 flats. (2) Glaedless Valley Estate. (3) H. Dornie and Sons Ltd., 69 Stovin Road, Sheffield, 9. (4) £106,676.

WARWICKSHIRE C.C. (1) Erection of County Grammar School. (2) Stratford on Avon. (3) Wheeler and Mansell Ltd., Lime Street, Evesham, Worcs.

SOUTHAMPTON. (1) Rebuilding St. Barnabas Church. (3) W. T. Nicholls (Southern) Ltd., Tennyson Road, Portsmouth, Southampton.

COVENTRY. (1) Office block for research laboratories, for H. Ferguson Research Ltd. (3) Turriff Construction Corporation Ltd., Budbrooke Road, Warwick.

DORE AND BREDWARDINE R.D.C. (1) 88 traditional houses. (3) Wates Ltd., 1258 London Road, Norbury, London, S.W.16.

BRITISH TRANSPORT COMMISSION. (1) Constructional work for waterside development. (2) Knostrop, near Leeds. (3) Cawood, Wharton and Co. Ltd., of Leeds and Harrogate. (4) £230,000.

BIRMINGHAM CORPORATION. (1) Eight storey block containing 88 flats. (2) Melville Road, Edgbaston. (3) W. J. Sims, Sons and Cooke Ltd., Haydn Road, Sherwood, Nottingham. (4) £417,000.

BIRMINGHAM. (1) R.C. Secondary School. (2) Sandon Road. (3) B. Whitehouse and Sons Ltd., 247 Monument Road, Birmingham.

OLDHAM B.C. (1) 87 houses. (2) Alt Estate. (3) James Hobson and Son Ltd., Drake Street, Rochdale. (4) £110,880.

WEST SUSSEX C.C. (1) Secondary school. (2) Hove. (3) William Willett Ltd., Hove Sussex. (4) £146,565.

EASTBOURNE B.C. (1) 62 flats. (2) Langley Village. (3) William Ellis (Etchington) Ltd., Etchington, Sussex. (4) £74,277.

GOLBORNE U.D.C. (1) 60 houses. (2) Culcheth. (3) G. and J. Seddon Ltd., Little Hulton, Walkden, Manchester. (4) £109,432.

ATHERSTONE, WARWICKSHIRE. (1) Knitwear factory. (3) Gotheridge and Sanders Ltd., The Old Forge, St. John Street, Lichfield. (4) £35,000.

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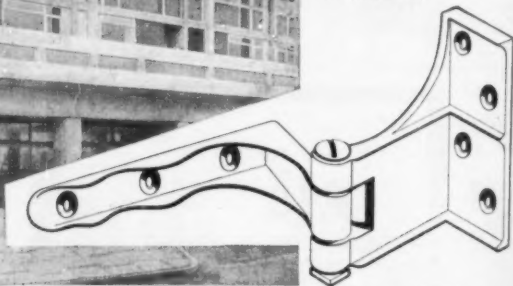
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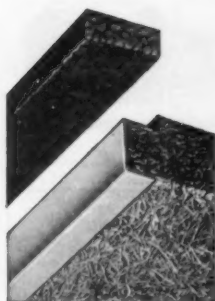
CORK and the 'COLD BRIDGE'

in ROOFS

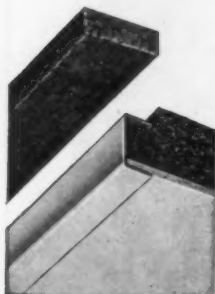
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For example: the channels of woodwool roofing slabs may in winter form such a cold bridge, with the result that in cases of high humidity the temperature of the soffit of the channels may be below dewpoint, when condensation will occur.

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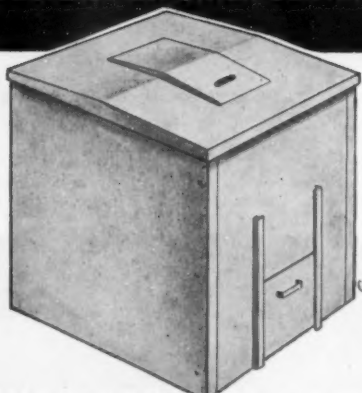
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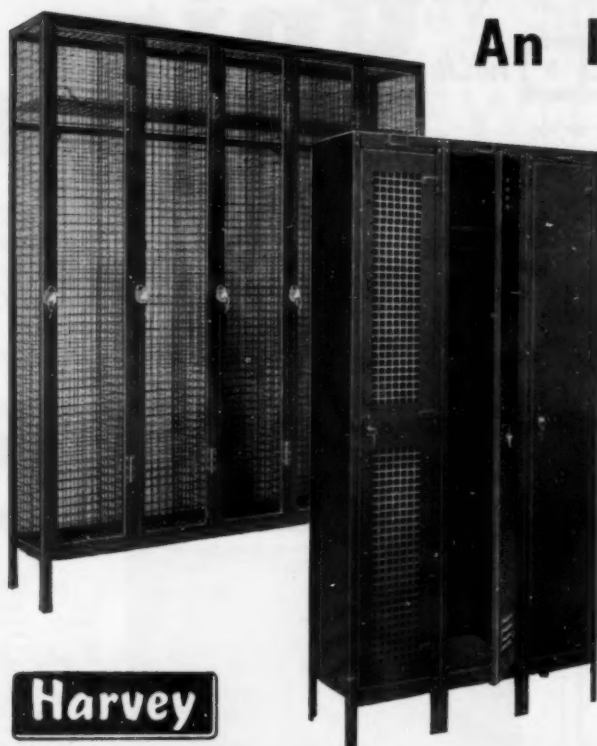
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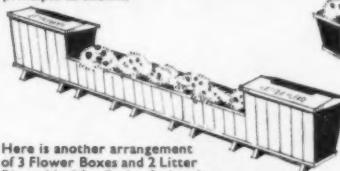
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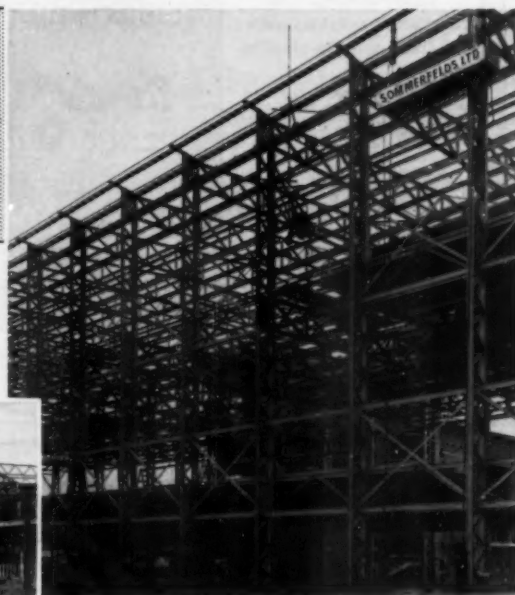
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Architect-Planner : Frederick Gibberd, F.R.I.B.A., M.T.P.I.
Executive Architect : Victor Hammett, B.Sc., A.R.I.B.A.

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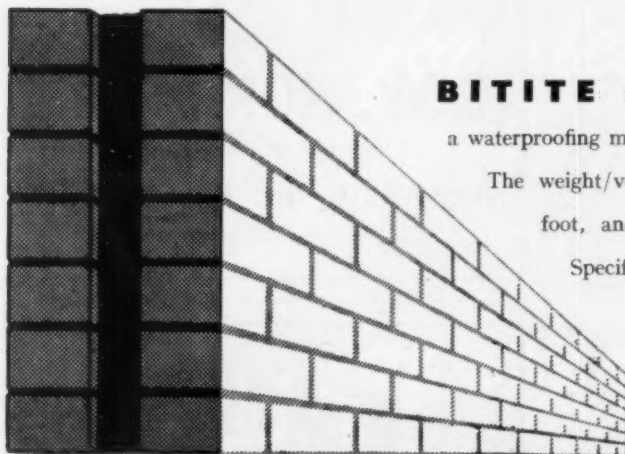
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APPOINTMENTS

BRAINTREE RURAL DISTRICT COUNCIL ARCHITECTURAL ASSISTANTS

APPLICATIONS are invited from persons with sound experience in the preparation of surveys, plans, details of construction and design of housing schemes. Preference will be given to applicants with R.I.B.A. Inter. or equivalent, N.J.C. service conditions; salary A.P.T. Grade II, £595-£675 p.a. Write, giving age, experience, qualifications and two referees, to me not later than October 6, 1956. No Forms. Canvassing disqualifies.

W. HUMPHREY,
Clerk of the Council.

Council Offices,
St. Peter's Close,
Bocking, Braintree, Essex. [2727]

CAMBRIDGESHIRE COUNTY COUNCIL COUNTY ARCHITECT'S DEPARTMENT

APPLICATIONS are invited for the following appointments:

- One Architectural Assistant, Grade A.P.T. III, £640/25-£765.
- Two Quantity Surveyors, Grade A.P.T. IV, £710/35-£885.
- One Assistant Quantity Surveyor, Grade A.P.T. II, £595/20-£675.
- Applicants should be Registered Architects, and preference will be given to Members of the R.I.B.A. They should have experience in the design and construction of public buildings, housing and modern schools, the preparation of specifications and of site supervision.
- Applicants should have had considerable experience in all duties of quantity surveying, including site measurement and final accounts.
- Applicants should have had experience in abstracting, billing and site measurement. Preference will be given to applicants who have passed the intermediate stage of the R.I.C.S.

The appointments are subject to the Local Government Superannuation Acts, 1937 to 1953, the National Scheme of Conditions of Service, a satisfactory medical examination and termination by one month's notice on either side.

Applications, stating age, present salary, present and previous appointments, details of training and experience, together with one recent testimonial and the names and addresses of two referees, should be submitted to the undersigned, not later than September 27, 1956.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall,
Cambridge.
September 5, 1956. [2707]

HOUGHTON-LE-SPRING URBAN DISTRICT COUNCIL ASSISTANT ARCHITECT

APPLICATIONS are invited for this appointment in the Surveyor's Department on A.P.T. Grade II (£595-£675). The commencing salary within the grade will be fixed according to qualifications and experience.

The appointment is superannuable and subject to the National Scheme of Conditions of Service.

Housing accommodation will, if necessary, be provided for the successful applicant, if married.

Applications, stating age, qualifications, experience, together with two testimonials, must reach me by September 29, 1956.

G. F. LAMB,
Clerk of the Council.

Broadway,
Houghton-le-Spring,
Co. Durham. [2723]

COUNTY BOROUGH OF EAST HAM BOROUGH ENGINEER'S DEPARTMENT SENIOR ASSISTANT ARCHITECT GRADE IV £710-£885 ARCHITECTURAL ASSISTANT GRADE II £595-£675

LONDON Weighing is paid in addition. Salaries in excess of the minima may be paid according to qualifications and experience.

Subsistence allowances may be granted over a reasonable period to persons appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Further details and application forms returnable by October 5, 1956, from the Town Clerk, Town Hall, East Ham, E.6. [2724]

APPOINTMENTS—contd.

LONDON COUNTY COUNCIL ARCHITECT'S DEPARTMENT

VACANCIES exist for Architect/Planner (salaries up to £217). Tasks include three-dimensional planning within London's eight major Comprehensive Development Areas (including Stepney/Foplar, the South Bank, and Elephant and Castle) and other Redevelopment Areas.

The work includes the preparation of comprehensive layouts covering all the important areas of new public and private development throughout the County, and covers the whole field of planning technique.

Particulars and application form, from Architect (AR/EK/ATP/2), County Hall, S.E.1. (907). [60.0]

COUNTY BOROUGH OF BLACKPOOL

APPOINTMENT OF JUNIOR ASSISTANT ARCHITECT

APPLICATIONS are invited for the above superannuable post in my Department.

The salary range is £590 x 3 at £25 x 1 at £15 x 3 at £25-£285 and the point of commencement will be £690.

Applicants should be graduate Architects or have passed the final examination of the R.I.B.A. Office experience will be an advantage.

Housing accommodation will be made available in suitable cases, or otherwise lodging allowance will be paid to married men for a limited period.

Applications stating age, experience, details of present and former employment (together with applicable salaries) and the names and addresses of two referees must reach the undersigned by October 1, 1956.

J. C. P. WEST, A.R.I.B.A., M.T.P.I.

Chief Architect.

Victoria St.,
Cwmbran,
Mon.
September 10, 1956. [2722]

COUNTY BOROUGH OF WEST HAM

BOROUGH ARCHITECT AND PLANNING OFFICER'S DEPARTMENT

RE-ADVERTISEMENT

APPLICATIONS are invited from Architects and Planners for the following permanent appointments at salaries shown (including maximum London Allowance):

ARCHITECTS	
Senior Group Architect	Grade VII £1,005 x £45-£1,230
Group Architect	Grade VI £910 x £40-£1,110
Deputy Group Architects (4 posts)	Grade V £825 x £35-£1,000
Assistant Architect	Grade IV £740 x £35-£915
Architectural Assistants (2 posts)	Grade I/II £560 x £20-£705

PLANNERS
Senior Assistant Planning Officer
Grade VI £910 x £40-£1,110

Assistant Planning Officer
Grade V £825 x £35-£1,000

Planning Assistant Grade IV £740 x £35-£915

Planning Assistant Grade I/II £560 x £20-£705

The County Borough has an extensive reconstruction and slum clearance programme, and offers varied and interesting work.

Application forms and details from the Borough Architect and Planning Officer, Thomas E. North, O.B.E., F.R.I.B.A., Dist.T.P., M.T.P.I., 70 West Ham Lane, Stratford, E.15. (Returnable by October 9, 1956.) [2719]

SHEFFIELD REGIONAL HOSPITAL BOARD

APPLICATIONS are invited for the post of Architectural Assistant. Candidates should have passed the Intermediate Examination of the R.I.B.A., or an examination recognised as equivalent. Salary/Scale £510 (at age 21 or over) x 20(5) x 30(1) x 20(1) x 25(2)-£710. The appointment is subject to the Whitley Council terms and conditions of service, to the National Health Service (Superannuation) Regulations, and to one month's notice on either side. Applications together with the names of three referees should be sent by October 5, 1956, to the Secretary to the Board, Fulwood House, Old Fulwood Road, Sheffield 10. [2726]

WE regret that the advertisement for the post of Studio Instructor required by the School of Architecture in the Cheltenham College of Art which appeared in last week's issue has been published in error. The Principal wishes to state that the post has been filled.

APPOINTMENTS—contd.

LONDON COUNTY COUNCIL

BRIXTON School of Building, as soon as possible Assistant Grade II for Building Construction and supervise Studio work in Architecture and Surveying. Should be Fellows or Associates of R.I.B.A. or R.I.C.S. and have good professional experience. Teaching experience an advantage. Burnham F.E. salary scale £686 x £25-£1,223, commencing and maximum salary according to age, qualifications and experience. Application forms from Secretary at School, Ferndale Road, S.W.4, returnable by October 6, 1956. (1789a). [2732]

COUNTY BOROUGH OF BLACKPOOL

APPLICATIONS (by Monday October 8), are invited for the following Posts in the Borough Surveyor's Department:

Assistant Quantity Surveyor, A.P.T. III (£640/£765 per annum).

Town Planning Assistant, A.P.T. II (£595/£675 per annum).

Application forms and particulars from the Borough Surveyor (Arthur Hamilton, E.Sc.) P.O. Box, 17, Municipal Offices, Town Hall Street, Blackpool.

ERNEST C. LEE,
Town Clerk. [2733]

COMPETITION

CITY OF CARLISLE

A TWO STAGE COMPETITION

THE Corporation of the City and County Borough of Carlisle invite architects registered under the Architects (Registration) Acts and resident in Great Britain, Northern Ireland or the Republic of Ireland to submit in competition designs for a new Assembly Hall and Municipal Offices to be erected in Carlisle. Assessor: Professor W. B. Edwards, M.A., B.Arch., M.T.P.I.(P).

PRELIMINARY: (a) Preliminary Stage. Six competitors will be selected to proceed to Final Stage. Each will receive the sum of £300. Last day for submitting designs, Friday, January 31, 1957.

(b) Final Stage. The author of the design placed first will receive £1,000. Last day for submitting designs, July 1, 1957.

Last day for questions, October 27, 1956. Conditions may be obtained from the Town Clerk, 15 Fisher Street, Carlisle on or after September 17, 1956.

Deposit £2 2s. Applicants for the conditions must state their registration number or the number of the receipt issued to him by the Architects Registration Council in respect of the admission fee.

H. D. A. ROBERTSON,
Town Clerk. [2689]

TENDERS

BOROUGH OF BEDDINGTON AND WALLINGTON

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THE Corporation will shortly be inviting tenders for the above works, which will be carried out under the supervision of the Borough Engineer and Surveyor.

The Corporation propose to obtain tenders by sending a Bill of Quantities to a limited number of contractors, and contractors wishing to tender are invited to apply not later than October 5, 1956.

A. B. BATEMAN,
Town Clerk.

Town Hall,
Wallington,
Surrey. [2731]

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ARCHITECTURAL Assistant, intermediate standard required by Birmingham firm, 5 day week, concessions for study. Box 4078 c/o A. & B. N. [2692]

ARCHITECTS' Co-partnership require Assistant for working drawings and detailed design. Salary according to experience. Office doing work in U.K. and West Africa. Write, 44 Charlotte Street, London, W.1, or telephone Langham 5791. [10002]

ARCHITECTS' Co-Partnership require qualified Assistants, with experience.—Write 44 Charlotte Street, W.1, or Telephone: Langham 5791. [10003]

ARCHITECTURAL Assistants required of intermediate R.I.B.A. standard for work on contemporary industrial buildings. Good salaries and plenty of opportunity for initiative. London office. Write, giving details of salary, experience, to Box 4255. [27118]

ARCHITECT (aged between 30 and 35 years) required for London Office dealing with wide range of many interesting industrial and domestic buildings of many types. Good knowledge of standards practice and code requirements essential. Knowledge of tropical buildings an advantage.

Five-day week; superannuation scheme; permanent position to right man with prospects of promotion. Apply, giving details of age and experience, to Personnel Division (WAD 131), Unilever Ltd., Unilever House, London, E.C.4. [27220]

ARCHITECTURAL APPOINTMENTS VACANT—contd.

ASSISTANTS required for London Office on interesting West African projects; prospects of overseas tours. Experience in tropical work preferable to qualifications. Salary by arrangement, apply.—Box No. 4304. [2730]

DESIGNING experience in the working out of projects for large buildings is offered to a young qualified Assistant with real ability. London Office.—Apply stating qualifications and salary required to Box No. 4025. [2683]

POST-INTERMEDIATE Assistant required, in large London office with widely varied practice.—Lew's Solomon, Son & Joseph, 21 Bloomsbury Way, London, W.C.1. Telephone. HOL. 7082. [0010]

QUALIFIED Architectural Assistant required. Write full particulars to T. Mitchell & Partners, 20 Bedford Square, W.C.1. [2725]

QUALIFIED Architect for design in London Office on interesting West African projects; prospects of overseas tours; salary by arrangement, apply.—Box No. 4303. [2729]

SENIOR ASSISTANT, A.R.I.B.A., or equivalent. With experience of domestic design, used both to office and site working and supervision. Required by architect dealing with houses and shops in the London area. Salary to £850 per annum, according to qualifications.

Apply to: H. L. Mead, A.R.I.B.A., No. 1 Cromwell Road, South Kensington, S.W.7. [2713]

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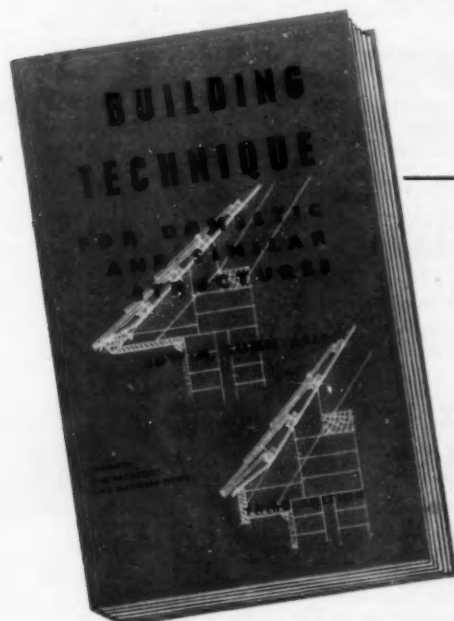
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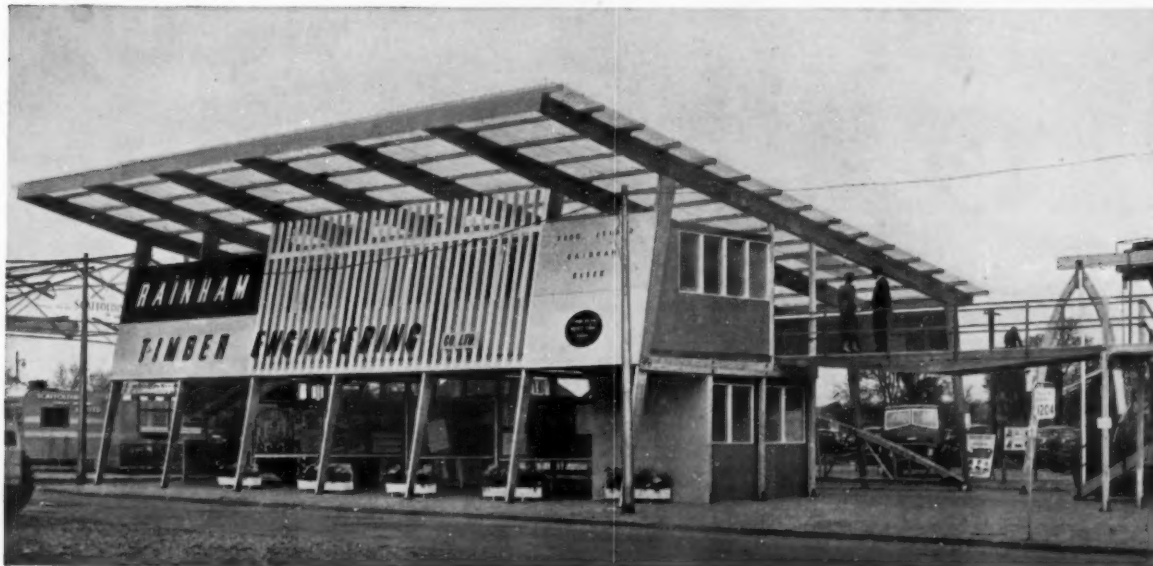
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In the foreground is a laminated timber beam 16ft span, 3in by 10in, supported by two tripods built of laminated timber. The beam designed for a safe working load of $1\frac{1}{2}$ tons and supporting a log weighing $3\frac{1}{2}$ tons—i.e. twice the load for which it was designed—showed a deflection of $\frac{3}{8}$ in which was completely recovered when the load was removed.

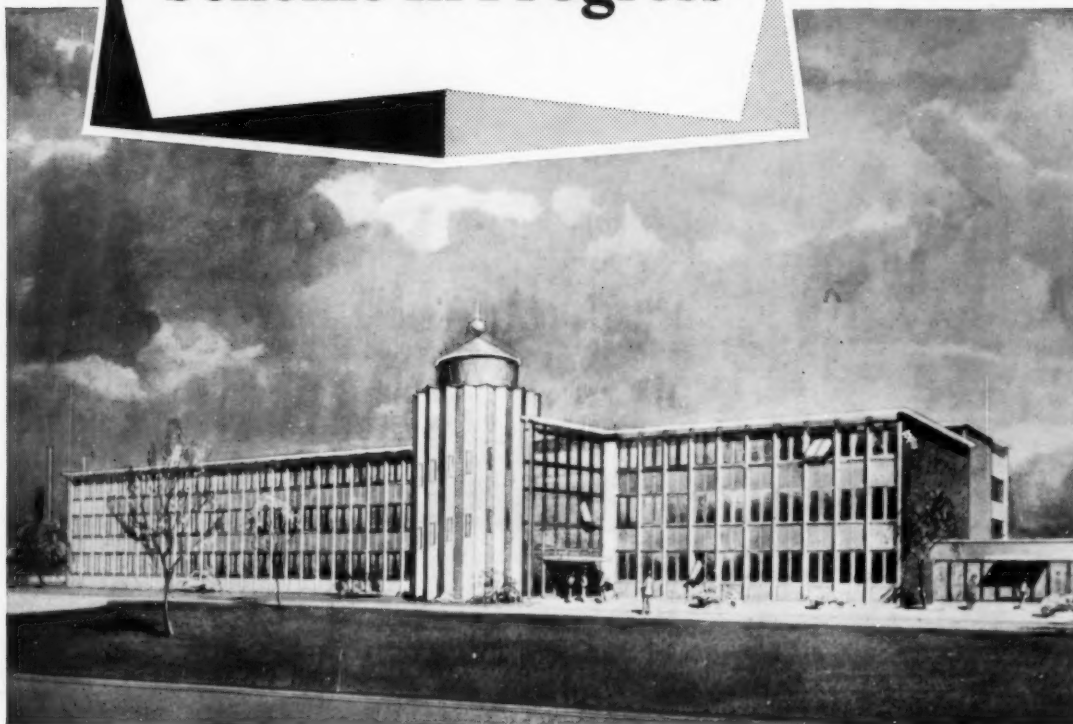
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Scheme in Progress



Administration Offices, Shell Haven

THE RAPID CONSTRUCTION of this modern office building for 'Shell' Refining and Marketing Company Limited at Shell Haven is an example of speeding construction by using new methods, new techniques, and by co-operation and team work between client, architect, engineers and the contractors' organisation.

The structural framework of the three-storey main building is in precast concrete units, comprising two 35 ft. 6 in. columns 6 ft. 8 in. apart, incorporating cill and edge beams 13 ft. 4 in. in length.

The building is 294 ft. in length and 43 ft. in width, and the design provides a column free interior.

The ends of the prestressed and precast concrete floor beams rest in the slotted edge beams. The cladding is of vitreous enamel panels with an inner leaf of Thermalite-Ytong blocks.

Architects:

Howard V. Lobb and Partners

Consulting Engineer:

Felix J. Samuely

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